THIS UNIVERSITY IS ACCREDITED BY THE NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION FOR THE PREPARATION OF ELEMENTARY AND SECONDARY TEACHERS AND TEACHERS IN THE SPECIAL FIELDS OF ART, BUSINESS, HOME ECONOMICS, MUSIC, DRIVER AND SAFETY EDUCATION, DENTAL HYGIENISTS, AND PUBLIC SCHOOL NURSES, AND BY THE MIDDLE STATES ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS. THE UNIVERSITY IS A MEMBER OF THE COUNCIL OF GRADUATE SCHOOLS IN THE UNITED STATES.

Indiana University of Pennsylvania Bulletin

1976-1978 Graduate Catalog

INDIANA UNIVERSITY OF PENNSYLVANIA
INDIANA, PENNSYLVANIA 15701

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GRADUATE SCHOOL CALENDAR

FALL SEMESTER, 1975–1976

August 1	Students who plan to take graduate work during the fall semester must have an application for graduate study approved on or before this date.
August 8	Tentative class programs for fall semester must be submitted by this date.
September 8	Fall semester classes begin.
October 1	Prospective December graduates must have filed an application for graduation and also have received official approval of the thesis proposal on or before this date.
November 26	Thanksgiving vacation begins at close of classes.
December 1	Thanksgiving vacation ends at 8:00 a.m.
November 1	Thanksgiving vacation ends at 8:00 a.m.
November 1	Final draft of research thesis due for December graduates.
December 20	Semester ends. (End of finals.)

SPRING SEMESTER, 1976

December 1	Students who plan to take graduate work during the spring semester must have an application for graduate study approved on or before this date.
December 15	Tentative class programs for spring semester must be submitted by this date.
January 26	Spring semester classes begin.
March 1	Prospective May graduates must have filed an application for graduation and also have received official approval of the thesis proposal on or before this date.
April 1	Final draft of research thesis due for May graduates.
April 13	Easter vacation begins at close of classes.
April 21	Easter vacation ends at 8:00 a.m.
May 15	Semester ends. (End of finals.)
May 16	Commencement.

SUMMER SESSION, 1976

Dates for the 1976 summer sessions have not been set. Please contact Graduate School for these dates.

June 1 — Prospective August graduates must have an application for graduation approved on or before this date.

June 28 — Final draft of thesis due for August graduates.

FALL SEMESTER, 1976–1977

August 1 — Students who plan to take graduate work during the fall semester must have an application for graduate study approved on or before this date.

August 9 — Tentative class programs for fall semester must be submitted by this date.

October 1 — Prospective December graduates must have filed an application for graduation and also have received official approval of the thesis proposal on or before this date.

December 1 — Final draft of research thesis due for December graduates.

SPRING SEMESTER, 1977

December 1 — Students who plan to take graduate work during the spring semester must have an application for graduate study approved on or before this date.

December 15 — Tentative programs for spring semester must be submitted by this date.

March 1 — Prospective May graduates must have filed an application for graduation on or before this date.

April 1 — Final draft of research thesis due for May graduates.

SUMMER SESSION, 1977

Dates for the 1977 summer session have not been set. Please contact Graduate School for these dates.

June 1 — Prospective August graduates must have an application for graduation approved on or before this date.

June 28 — Final draft of thesis due for August graduates.

THE GRADUATE SCHOOL AT INDIANA

GENERAL INFORMATION

Graduate work was inaugurated at Indiana University of Pennsylvania in September, 1957.

Programs leading to the degrees Master of Education, Master of Arts, Master of Science, Doctor of Education, and Doctor of Philosophy are now available. Non-degree programs leading to certification in various fields are also available.

In all graduate programs the objectives are (1) to encourage excellence in scholarship, (2) to provide for depth in the student's special field, and (3) to stimulate enthusiasm for continued cultural and professional growth.

Location – Indiana University of Pennsylvania is located in Indiana, Pennsylvania, a community with a population of approximately 20,000. Indiana is 30 miles north of Johnstown and 60 miles northeast of Pittsburgh. Situated in the foothills of the Allegheny Mountains, Indiana has a climate that is conducive to study the year round.

Library – The Rhodes R. Stabley Library provides excellent facilities for graduate work with professional librarians readily available for assisting with specialized reference work.

The present book collection of 475,000 volumes grows at the rate of approximately 50,000 volumes annually. The library owns 630,000 units of microform and in addition there are extensive holdings of periodicals (about 4,000 current titles), microfilms, microcards, curriculum materials, federal and state documents, filmstrips and recordings.

The Rhodes R. Stabley Library was opened in 1961. It is designed to give efficient service through a uniform flow of library materials in an attractive, but functional setting. At least one professional librarian is always on duty to provide reference service. Book stacks are open to all students.

Instructional Resources Services – The University support service dealing with Instructional Systems Technology has been developed to assist in the teaching/learning process by making available sensory or non-book materials for instruction and actively assisting faculty in the process of Instructional Development.

The services consist of the research and development of instructional systems such as dial access, student response, FM radio, closed-circuit as well as community Cable TV, and personal self-instructional materials. In addition, the services provide photographic, sound recording and reproduction, design and production of conventional instructional materials; procurement, inventory, and maintenance of University multi-media equipment and materials; developing and maintaining a 16mm film library; and assisting in technical consultative services dealing with sensory materials to the administration, instructional staff, students, and community.

Although the media equipment and materials are primarily located in the academic departments, the service center with the exception of maintenance, is housed in the lower floor of Davis

Hall. It is estimated that the University media inventory is worth well over a half million dollars.

The Computer Center – The Computer Center, established in July, 1963, is located in the heart of Indiana's main campus. The Center provides computational support for undergraduate and graduate courses, faculty and student research, and the administrative requirements of the University. The computing capacity of the Center is provided by a large-scale disk oriented central processor which supports both time-sharing and batch processing services for the university community. Typewriter terminals, located both in the Computer Center and in various departments on campus, permit the use of the computer on a time-sharing basis. Keypunching facilities and a full complement of tabulating equipment are available in the Computer Center for student use. Additional keypunching facilities are also available in many departments on campus. Aid in the use of the computer and facilities may be obtained from user assistants on duty at the Computer Center, and from the Center's professional staff.

Indiana's Computer Center plays an active part in the daily functioning of the University. It is the principle laboratory facility for computer-oriented courses and is used as a teaching aid in many classes involving statistical and numerical analyses and computer simulations. The staff at the Center is actively involved in continuing work aimed at making computers a more effective and readily accessible tool for both the academic and administrative segments of the university community.

Career Services – Placement is a service offered by Indiana University of Pennsylvania to its graduates without charge. The services of the Placement Bureau are available to students who have received their Master's degree or who have been accepted as candidates for the degree in the Indiana Graduate School. Graduate students wishing to take advantage of placement service should complete the necessary forms with the Director of Career Services.

The Career Services Office prepares a listing of all current job openings available to IUP graduates. To obtain this listing, the graduate can stop in Career Services or send a stamped, self-addressed envelope requesting the listing. Credentials are also mailed out to potential employers at their request.

Address: Career Services Office
302 Pratt Hall
Indiana University of PA
Indiana, Pa. 15701

FINANCIAL AID

Assistantships

For full-time graduate students (9 or more semester hours), a number of graduate assistantships are available at the University each year. Duties include teaching under supervision, assisting professors in an instructional or research capacity and providing needed student services.

The two levels of assistantship assignment are for duties of 20 hours per week with a stipend of $2705 and duties for 10 hours per week with a stipend of $1352. Both assistantship levels provide a waiver of tuition for the period of assumption of duties through the following August.

Students interested in assistantship appointments should request applications from the office of the Associate Dean of the Graduate School. The deadline for making application is March 15. Applicants for assistantship must complete their applications for admission to the Graduate School and be accepted before they can be considered for an assistantship. Assistantship appointments are made upon the recommendation of the Chairman or Director of Graduate Studies in the department concerned with the approval of the Graduate School. Applicants are notified of the decision of their application on or shortly after April 1.

Fellowships

Fellowships may be available from specific departments. These vary in stipends paid and tuition waived. Interested students should contact the departments directly.

Scholarships

The Indiana University of Pennsylvania Board of Trustees has authorized the Loan and Scholarship Committee to award some scholarship aid to meritorious graduate students. The following procedure has been established by the Loan and Scholarship Committee.

1. One $50.00 scholarship be awarded each semester to the graduate student who best merits the award.

2. Three members of the Graduate Council serve as a committee to recommend the recipient to the Loan and Scholarship Committee.

3. Nominations for the award be made to the committee by the Dean of the Graduate School.

4. To be eligible for nomination the student must have completed twelve semester hours of graduate work at Indiana and be an approved candidate for a graduate degree at Indiana.

Delta Pi Epsilon Graduate Scholarship – This graduate scholarship was established by Beta Alpha Chapter of Delta Pi Epsilon which is a National Honorary Graduate Fraternity in Business Education. The scholarship award of $25.00 is made each year by Beta Alpha Chapter and is awarded to a business education graduate student on the basis of outstanding scholarship and research.

Kappa Delta Pi Graduate Scholarship – The Kappa Delta Pi Graduate Scholarship was established by Beta Gamma Chapter of this university to honor that member of the graduate group who is judged the ideal student. The award of $25.00 is made each year by a committee of the local chapter and is awarded on the basis of scholarship and research competition.

Veterans – Indiana is approved to offer training under the various G.I. Bills (Public Law 550) and Public Law 894 (disabled veterans). Students who are entitled to training under one of these bills should contact the Veterans' Counselor immediately after being accepted for admission to Indiana in order to secure additional instructions. This procedure is necessary so veterans may be included on the monthly payrolls. The Office of the Veterans' Counselor is in Pratt Hall.

ACADEMIC INFORMATION

PROCEDURES AND REGULATIONS

A student is expected to assume full responsibility for knowing the regulations of the Graduate School. These regulations are set forth in the catalog. Students should be familiar with general regulations governing requirements for the degree and specific regulations governing the program in which he plans to work. In addition, students should be familiar with regulations set forth in Graduate Student Rights and Responsibilities. A copy may be secured from the Graduate School Office.

PROGRAM CHANGES

To insure their quality and relevance, the graduate programs at Indiana University are subject to constant review and change by responsible and duly-appointed groups. Consequently, the University recognizes that provision must be made to prevent hardship to students already enrolled in programs when program or general university requirements are changed. Students affected by changes in programs, policies and regulations are given the option of following requirements in force when the student first enrolled for graduate study or those requirements in force at the time of expected graduation. While it is the student's option to choose between old or new requirements for his chosen program, he cannot vacillate between adhering to either one or the other set of requirements. Should a matter of interpretation of such situations arise, the student, his advisor, or both should petition the Dean of the Graduate School for a decision on which requirements apply.

ADMISSIONS

Admission to the Graduate School is required of all students who wish to take graduate courses for graduate credit. Each student applying for admission, either as an applicant for a graduate degree program or as an applicant for a non-degree program, must file with the Graduate School an application for admission and such other supporting documents required. Application materials will be supplied by the Graduate School upon request. The application materials should be on file in the Graduate School at least one month prior to the beginning of the semester or term in which the applicant expects to begin graduate work. Each applicant should check the Calendar in this catalog for application deadlines.

Admission to the Graduate School means that a student may program and register for graduate courses. Admission to the Graduate School does not guarantee subsequent admission to candidacy for a degree nor does it guarantee successful completion of all requirements for the degree.

Application Procedures

1. Each applicant must file with the Dean of the Graduate School a complete application form.
2. Each applicant must request two copies of official transcripts from each undergraduate and graduate institution attended. Forms for requesting transcripts are included in the application packet.
3. Each applicant should request letters of recommendations from three individuals familiar with his background. At least two letters should be requested from individuals familiar with the academic background of the applicant. Recommendation forms are included in the application packet.
4. All applicants will be asked to take the Graduate Record Examination. See instructions in application packet.
5. An application fee in the amount of $10.00, non-refundable, must accompany the application. The check should be payable to: Indiana University of Pennsylvania.

Requirements for Admission

1. An applicant must have a Bachelor's degree from a college or university accredited by the Middle States Association of Colleges and Secondary Schools or an equivalent regional accrediting agency.
2. The applicant shall present an official transcript of all previous college and university work. The undergraduate honor point value should be 2.6 or better for all four years (2.6 assumes a grading system in which A = 4.0). If not, the applicant under certain circumstances may be asked to submit additional evidence of academic ability. Normally, this additional evidence may be in the form of scores from the Graduate Record Examination.
3. Applicants planning admission to programs leading to the M.Ed. degree should have a Provisional Pennsylvania Teachers Certificate or its equivalent. Applicants for admission to graduate study leading to the M.Ed. degree who do not have proper teacher certification may be required to complete a planned program leading to certification by the time the student applies for candidacy for the M.Ed. degree.

Admission Classifications

An applicant for admission to the Graduate School will receive notification of admission classification from the Dean of the Graduate School prior to the term in which the applicant intends to begin study. Admission classifications are as follows:

1. Full Graduate Standing. This classification may be given to an applicant who plans to work towards a graduate degree in the field of study and who has satisfied the requirements for admission to the Graduate School. Admission to the Graduate School on full graduate standing allows the applicant to program for courses, but it does not guarantee subsequent admission to candidacy for a degree in a specific field.
2. Provisional Graduate Standing. This classification may be given to qualified applicants who plan to work towards a graduate degree, but whose application materials are incomplete at the time of admission. However, if upon completion of application the applicant does not meet the minimum standards for admission, he may be denied admission.

3. Special Graduate Standing. This classification may be granted to applicants who do not plan to work towards a graduate degree and have satisfied the requirements for admission to the Graduate School. Applicants granted special graduate standing who wish at a later time to be reclassified to full graduate standing may request reclassification. Credits completed while on special graduate standing may be applied towards a graduate degree after the student's classification has been changed to full graduate standing. Such action requires approval of the Graduate Dean.
4. Inactive Standing. Applicants who decide to postpone their actual enrollment in graduate classes will be classified as inactive. Applicants may remain on inactive status up to one year after the intended date of initial enrollment in courses. Thereafter, they must reapply for admission to the Graduate School.
5. Denied Admission. This classification may be given to an applicant who does not satisfy minimum requirements for admission to the Graduate School. An individual denied admission will normally receive a letter giving the reasons for the denial.

Miller Analogies Test – Applicants for admission who are requested to take the Miller Analogies Test should schedule the examination through the Graduate School. The test is administered once a month. Applicants taking the M.A.T. at another institution should request that the score be sent to Dean, Graduate School, Indiana University of Pennsylvania.

Graduate Record Examinations – Applicants for admission after September 1975 should take the Graduate Record Examination prior to initial admission. Information and instructions are included in the application packet. Graduate students admitted prior to September 1975 must take the Graduate Record Examination prior to admission to candidacy for the degree. Individuals wishing to take the Graduate Record Examination should write Educational Testing Service, Princeton, New Jersey 08540. Information regarding deadlines may be secured from the Graduate School. Students taking the Examinations should request that scores be sent to Dean, Graduate School, Indiana University of Pennsylvania.

Foreign Student Applicants

All foreign students applying for admission to the Graduate School should follow general procedures. In addition each applicant whose native language is not English must present evidence of ability to comprehend English. Each applicant should plan to take the Test of English as a Foreign Language (TOEFL) administered by the Educational Testing Service, Princeton, New Jersey, U.S.A. No foreign student's application will be considered until scores are filed with the Dean, Graduate School, Indiana University of Pennsylvania. Each applicant must also present evidence to the Graduate School of adequate financial resources. These resources should be sufficient to meet the cost of living in Indiana, Pennsylvania, cost of travel to and from the student's native country and cost of graduate education. Evidence of

adequate financial resources should be sent directly to the Dean, Graduate School, Indiana University of Pennsylvania, Indiana, Pennsylvania 15701. As a regular procedure, the Graduate School notifies the University Foreign Student Advisor at the time of every foreign student's application. Applicants with questions on legal-political matters should direct them to him.

Auditors

A student cannot audit a class unless he has been admitted to the Graduate School. Auditors must have permission from the instructor and the Dean of the Graduate School before programming as an auditor. An auditor will pay the normal tuition and required fees. An auditor will, with permission from the instructor, participate in class discussion, do practicum work, take examinations and share the privileges of a class member. An audit grade will be given only if the student has completed all course requirements. The auditor cannot secure credit for his work nor can he subsequently secure credit for work done in the course. A student, who because of his status as a graduate assistant or a fellowship recipient, is required to register for a certain number of credits is not permitted to count those courses for which he is registering as an auditor for this purpose.

Academic Load

Many graduate students depend upon part-time or full-time employment to meet expenses. A student who is thus employed must recognize the time demands of his work schedule in planning his academic program. The Graduate School takes the position that the facilities of the Graduate School should be made available only to students who can profit from their Graduate School experience to a maximum extent.

It is possible for students to schedule a full-time load in many of the approved programs. Nine to sixteen semester hours of work per semester is regarded as a full-time graduate load. Eight semester hours of work or less is regarded as a part-time graduate load. Students who intend to take a full-time load should not plan to hold an outside full-time job. Graduate Assistants cannot register for more than thirteen hours in any one semester. No student can accumulate more than six hours in "tour" courses toward a degree.

PROGRAMMING AND REGISTRATION

Advisement – After a student has been admitted to the Graduate School, he should check with the Chairman or the Director of Graduate Studies in his intended field of study. If the student is unclassified, he should consult with the Dean of the Graduate School. Advisement is required for all students enrolling for graduate classes for the first time. Certain departments require that students be advised before programming for courses each semester. Consult instructions with program materials for a listing of departmental instructions on advisement.

Pre-Registration – Prior to each semester or summer session the graduate student will receive pre-registration materials and instructions from the Graduate School. Fill out the program form

according to instructions and return form to the Graduate School by the deadline specified in the Calendar. Each program must be subsequently approved by the Graduate Dean.

Final Registration – After the student has returned his program to the Graduate School, he will receive a bill for tuition and fees from the Business Office. Bills should be paid before the student attends classes. Final registration for the courses takes place on campus. Instructions will be sent with pre-registration materials.

TUITION AND FEES

Full-Time Tuition (in-state)
$400 for 9 to 15 SCH, then $43 for each additional SCH.

Part-Time Tuition (in-state)
$43 per SCH for less than 9 SCH.

Full-Time Tuition (out-of-state)
$750 for 9 to 15 SCH, then $80 for each additional SCH.

Part-Time Tuition (out-of-state)
$80 per SCH.

Summer Session Tuition (for Pennsylvania residents)
Per SCH $43.00

Summer Session Tuition (for non-residents of Penna.)
Per SCH $80.00

Application Fee (Must accompany application form) . . $10.00

Service Fee – Academic Year Full-Time Students
(9 credits or more) $30.00
Academic Year Part-Time Students
(8 credits or less) $11.00
Main Summer Session –
All Graduate Students $10.50
Pre and Post Summer Session –
All Graduate Students . . . . . $ 3.75

Late Fee . . . . . $1.00/day up to $10.00

Applied Music Fee $70.00

Auditors Fee (Same as tuition)

Graduation Fee . . . . . $ 5.00

Master's Cap, Hood and Gown Fee . . . . . Nominal

All fees are subject to change without notice.

Refunds

No portion of the course tuition shall be refunded after the end of the sixth week of classes. A graduate student is considered to be in class attendance up to the date on which he submits to the Graduate Dean a written notice of his intent to withdraw. In the case of withdrawals occurring before the seventh week of classes, the following procedures prevail. If he withdraws in the period beginning with the first day of registration, to and including the fourteenth day following the opening of registration, he forfeits one-quarter of the total semester's charges or $50.00, whichever is greater. If a student withdraws during the

period beginning with the fifteenth day following the opening of registration to the end of the sixth week of Graduate Classes, he forfeits one-half of the total semester's charges or $100.00, whichever is greater. No refunds will be granted for discrete withdrawals. No refunds will be made for summer sessions. No refunds will be granted to students suspended or expelled by the University.

Withdrawals

Withdrawal From Courses – If a student withdraws from a course before one-half of the periods scheduled, he may do so by notifying the Graduate Dean in writing of his intent to withdraw. A grade of "W" will be entered on the permanent record. A student withdrawing from a course after the completion of the sixth week will automatically receive an "F". If withdrawal is caused by a health condition or for another approved reason, the grade may be indicated as incomplete and made up within sixty days of the end of the semester in which the grade was given.

Withdrawal From Graduate School – If a student withdraws from the Graduate School, the Dean of the Graduate School must be notified in writing. Students withdrawing for reasons of health or military service may be reinstated at some future time without the leave period counting as part of the five years required to complete the degree. Students who have been receiving financial aid through the Financial Aid office must process through that office at the time of their withdrawing.

GRADING SYSTEM

The following grading system is used for all graduate classes:

A – Excellent	C – Fair	I – Incomplete
B – Good	F – Failure	W – Withdrawn

An "I" (Incomplete) may be issued only when the work is interrupted for justifiable reason. No "I" can be given without the consent of the Dean of the Graduate School. An "I" must be made up within sixty days of the end of the semester in which it was given. An "I" given for GD 550 or GD 650 may be carried indefinitely. If not made up within the sixty day period, the "I" will automatically become an "F". A "W" will be entered on the permanent record if the student officially withdraws before the completion of the sixth week of the scheduled periods. No "W" can be given without the consent of the Dean of the Graduate School. If a student officially withdraws after completion of the sixth week of the scheduled periods, an "F" will be entered on the permanent record. However, if this withdrawal is justifiable and approved by the Graduate Dean, an "I" can be given.

APPLICANTS FOR SPECIALIST CERTIFICATION PROGRAMS

Indiana University of Pennsylvania offers specialist certification programs in Learning Resources, Public School Psychology and Reading. Applicants for these programs should follow the

same procedures for admission, programming and registration described above. Applicants should check program descriptions in catalog for special requirements. The specialist certificate program in Learning Resources and Mass Media is a pre-master's level program. Applicants must hold a permanent college certificate for elementary or secondary education.

The Public School Psychology program is designed for those individuals who are seeking certification as Public School Psychologist in the Commonwealth of Pennsylvania. Applicants for admission to this program must have a Master's degree and an Instructional or Specialist certificate from an accredited institution.

The Reading program is designed for those individuals who are seeking certification as (1) Reading Specialist or (2) Reading Supervisors. The program leading to certification as a Reading Specialist must be taken in conjunction with an M.Ed. program in Reading. Applicants who are seeking certification as Reading Supervisors must complete all requirements for the M.Ed. in Reading, be eligible for a Level III certificate and 18 semester hours of course work selected from Reading Supervisor's Program of Studies.

CLASS CANCELLATION

It is the policy of the Graduate School not to cancel regularly scheduled classes because of weather conditions, nor does the Graduate School issue announcements over radio stations or in newspapers or give information through its switchboard that classes will be suspended because of such conditions. In cases of emergency which disrupt transportation facilities or create personal problems, students should make decisions as to attendance which appear appropriate to them in their particular circumstances.

GRADUATE STUDENT RIGHTS AND RESPONSIBILITIES

In 1971 a document on graduate student rights and responsibilities was formulated through student and faculty action and approved by the Board of Trustees. A copy of this document is available to any student at the Graduate Office upon request. Some of its key provisions are the following.

General – When a student is admitted to the Graduate School, he assumes responsibility for following the procedure for (a) programming and registering, (b) payment of fees, (c) withdrawal from class, (d) residency, (e) time requirements, (g) degree candidacy, and (h) graduation.

Grading – A student has the right to expect that all course requirements including grading criteria and procedures, will be made clear early in a course and that course grades will represent the instructor's professional and objective evaluation of performance.

Evaluation – A departmental evaluation of academic progress and professional potential is to be placed in personal files. Such evaluation is available upon request.

Instruction – One has the right to instruction which encourages the free and open discussion of ideas, and which respects the individual needs and aspirations of the students. Likewise, it is one's responsibility to maintain the classroom decorum and atmosphere which insures that this process of learning can take place.

Advisement – One has the right to the best advice and counsel that your department can provide in such areas as program and planning, selection of courses and professors, and general degree requirements.

Role in One's Department – Each department offering a graduate program is required to establish a Graduate Studies Committee and is urged, but not required, to form an association for its graduate students.

The Graduate Student Council – The Graduate Student Council is the graduate students' organization. One representative to serve on the Graduate Student Council is elected from each department by the full- and part-time graduate students of that department. The Graduate Student Council functions to serve all graduate students by regularly reviewing the policies of the Graduate Council, by participating in the judicial procedure for graduate students, and by working to improve the social and cultural life of the Graduate student.

Judicial Procedure – Any member of the academic community of Indiana University of Pennsylvania may initiate a case involving the rights or responsibilities of graduate students. The Graduate Student Judiciary, composed of the three officers of the Graduate Student Council and two other council members, has original jurisdiction in all cases. A case may be referred, or a decision appealed, to the Departmental Graduate Judiciary, composed of the Director of Graduate Studies of the Department, two members of the graduate teaching staff, and two graduate students.

The final step in the judicial procedure is the University Graduate Judiciary, composed of five members of the Graduate Council. The University Graduate Judiciary hears all appeals brought before it, and its decision is final and binding.

REGULATIONS FOR PRINCIPAL'S CERTIFICATES IN PENNSYLVANIA

On October 1, 1964, new regulations for the issuance of principal's certificates became effective. The new regulations for the provisional elementary or secondary principal's certificate are substantially as follows: An applicant shall: (1) Hold a Pennsylvania College Certificate. (2) Have three years of successful experience. (3) Complete 45 semester hours of graduate study, including a Master's degree with the following minimum

requirements: (a) 12 semester hours in an academic field other than psychology; (b) 15 semester hours distributed among administrative processes, curriculum and instructional processes, and the history and role of the school in society; and (c) documentary evidence of proficiency in English. The College Certificate and experience must be at the level (elementary or secondary) for which administrative certification is requested.

The Cooperative Administration of the Regulations by Indiana University of Pennsylvania and The Pennsylvania State University

An applicant for a Provisional Elementary or Secondary Principal's certificate must be endorsed by an institution with an approved program in administration. Indiana does not provide a program in administration but has a cooperative arrangement with The Pennsylvania State University whereby a student interested in this certification may secure the endorsement of the approved institution by the following plan:

1. If a candidate for one of these certificates completes graduate work at Indiana for a Master of Education Degree in Elementary Education or in an academic field, he may complete the post master's-work (at least 15 hours) at The Pennsylvania State University.

2. When the Student applies for admission to candidacy for the M.Ed. at Indiana, he should indicate his intention to seek principalship certification. The Dean of the Indiana Graduate School will review the candidate's qualifications and may recommend the candidate to The Pennsylvania State University.

3. The Pennsylvania State University decides how much of the graduate work completed at Indiana may be counted towards the 45 hours needed for certification endorsement. Part or all of the minimum 30 hours earned for the M.Ed. at Indiana may be acceptable. The student should plan to schedule reading courses and courses in measurement and statistics as electives in his program at Indiana.

4. The completion of the research requirement at Indiana may be accepted as documentary evidence of proficiency in English.

5. After completion of his graduate program at Indiana, the student should seek admission to the Graduate School of The Pennsylvania State University indicating his interest in principalship certification. For application forms and information write to: The Assistant Dean for Admissions, The Graduate School, The Pennsylvania State University, University Park, Pennsylvania 16802.

6. The provisional certificate based on the 45 hours is valid for serving as a Principal for five years. To make this provisional certificate permanent, 15 additional approved graduate hours are required and may be completed at The Pennsylvania State University or other institutions with an approved administration program.

MASTER'S DEGREE PROGRAMS

The Graduate School at Indiana University offers work leading to the degree Master of Education in the following fields:

Art
Biology
Business
Chemistry
Counselor Education
Educational Psychology
Elementary Education
Elementary Mathematics
Elementary Science
English
Geography
Geoscience
German
Home Economics
Learning Resources
Mathematics
Music
Physics
Reading
Science
Social Science
Spanish
Special Education
Speech and Hearing

Work leading to the Master of Arts degree is offered in:

Counseling Services
Criminology
English
Geography
Geoscience
German
History
Music
Psychology
Social Science
Sociology
Spanish
Student Personnel Services

Work leading to the Master of Science degree is offered in:

Biology
Business
Chemistry
Geography
Mathematics
Physics
Special Education
Speech and Hearing

In addition to the above programs, an interdisciplinary independently structured PROFESSIONAL GROWTH program has been developed. The degree awarded will be either an M.A., M.S., or M.Ed., depending on the various area concentrations determined by each student and his advisory committee. For further information write PROFESSIONAL GROWTH DEGREE, THE GRADUATE SCHOOL, INDIANA UNIVERSITY OF PENNSYLVANIA, INDIANA, PENNSYLVANIA.

Requirements for the Master's Degree

All students working towards a master's degree must satisfy the minimum Graduate School requirements described below. In addition each department may have special requirements. Students should be familiar with the requirements in their own department.

Under certain circumstances Graduate School requirements for the Master's degree may be satisfied by means of substitution. In no case will a requirement be waived. Requests for the acceptance of substitutions should be made in the form of a petition to the Graduate Council. Each petition must have the approval of the Graduate Dean and the Department Chairman.

Residency Requirement – Each student working towards a master's degree must satisfy the residency requirement. The residency requirement can be satisfied by either full-time study (nine or more semester hours) during fall or spring semester or by completing 12 semester hours in two consecutive summer sessions plus four semester hours during the intervening academic year or 16 semester hours in two consecutive summer sessions.

Admission to Candidacy – The student must complete the following steps to qualify for admission to candidacy:

1. Submit an official application for admission to candidacy.
2. Complete with satisfactory grades at least six semester hours and no more than 12 semester hours of graduate work at Indiana University of Pennsylvania.
3. Submit scores from the Graduate Record Examinations.
4. Satisfy the Research Course requirement.
5. Submit a tentative program of study for the completion of the graduate program.

An applicant for admission to candidacy must be recommended for admission by his department. Admission to candidacy requires the approval of the Graduate School.

Transfer of Credit – Credit for graduate courses completed at another institution may under certain circumstances be transferred to a graduate student's program at Indiana University. These courses must have been completed on the main campus of an accredited institution. Transfer credit will not be accepted for courses in which a grade lower than a B or its equivalent have been received. Transfer credit will be given only if the course was completed within the five years immediately preceding the awarding of the degree.

No more than six credits of transfer work will be accepted. A student cannot request transfer of credit until he has been admitted to candidacy. Transfer of credit must be approved by the candidate's department and the Dean of the Graduate School. Students who wish to register for courses in another institution while enrolled in a graduate degree program at Indiana University must receive permission from the Dean of the Graduate School prior to registering for these courses.

Credit Requirement – Each candidate for the master's degree must complete a minimum of 30 semester hours, as well as all other requirements for that degree.

Time Requirement – All requirements including course requirements must be completed within the five years immediately preceding the date of the awarding of the degree. Any work accepted by transfer from another institution must fall within this period.

Research Course Requirement – Each candidate for the master's degree must satisfy the research tool requirement. Normally this can be satisfied by taking GD 515 or an acceptable department substitute. Under certain circumstances, this requirement may be satisfied through independent study. However, permission of the Graduate Dean is required in such case.

Scholarship – Each candidate for the master's degree must complete an acceptable program with an overall grade point

average of 3.0 (B) or better. Candidates who have completed all other requirements for the master's degree, but are below the minimum overall grade point average will not be accepted as applicants for the degree.

Final Six Credits – All candidates for the Master's degree must complete the final six credits of work in courses given by Indiana University. Under certain circumstances appropriate substitutions may be made in order to satisfy this requirement. Students wishing to make substitutions may make such a request to the Graduate Council.

Application for Graduation – After completing all requirements for the master's degree, the candidate must file an application for graduation. All applications must be filed prior to the deadlines listed in the Calendar.

Graduation – At the time that all requirements for the Master's Degree have been completed, the degree will be awarded at the following graduation date. An official diploma will be available for the student at graduation following the completion of the requirements.

Requirements for Certification Programs

Applicants admitted to the Graduate School who wish to work towards certification should check program descriptions in catalog for requirements related to their program. Students admitted to certification programs which include the completion of a master's degree will come under the same regulations described above. The Graduate School does not certify students. Certification is made upon the recommendation of the Dean of the School of Education.

The Research Requirement

Candidates for the M.A., M.S., or M.Ed. degree must satisfy the research requirement as established by the Graduate Council and designed by the departments of the various graduate fields. This requirement is essentially that every candidate must conduct some independent study related to his major field and report on this study with a written thesis, a recital, or another approved method. The degree sought, the ability and record of the candidate, and the nature of the proposed research are factors in determining how each candidate will be advised to satisfy this requirement.

A description of the procedures for satisfying the research requirement is available in the Graduate Research Office. Each student is responsible for securing a copy of these procedures prior to beginning research.

Advanced Graduate Study Beyond Master's Degree

Students may find that more courses are offered that would be of benefit to them than they are able to include in their Master's degree program. These students are encouraged to continue their

training after receiving their Master's degree and this additional training will be recognized by many school districts for salary purposes and by the Bureau of Teacher Certification for certification purposes. Students are advised, however, that most graduate schools have their own residence requirements and will probably not accept more than 30 credit hours (or Master's equivalent) of graduate credit earned at Indiana toward the Doctor's degree at their institution.

Appropriate certificates may be awarded to the student who completes an additional 15 or 30 credit hours beyond the Master's degree. For purposes of this certificate these credits must be apportioned in a manner approved by the Dean of the Graduate School.

Eligibility of Teaching Staff

Members of the teaching faculty of Indiana University of Pennsylvania with a rank of Assistant Professor or above (or equivalent), may not receive a graduate degree from this institution. This regulation applies also to any faculty member employed by this institution full-time at the instructor rank unless such an individual is already an approved candidate for a degree in the Graduate School of IUP at the time he is given full-time employment as an instructor. Faculty members may, however, register for work in the Graduate School and apply the credit toward graduate degrees to be conferred by other institutions.

DOCTORAL DEGREE PROGRAMS

The Graduate School at Indiana University offers work leading to the degree Doctor of Philosophy in the following fields:

English and American Literature
English Education

Work leading to the degree Doctor of Education is offered in the following field:

Elementary Education

The Graduate School requirements for the Ph.D. and the D.Ed. are available in the Graduate School Office. Students admitted to these programs are responsible for securing a copy of these regulations.

Requirements for the Doctoral Degree

All students working towards a doctoral degree must satisfy the minimum Graduate School requirements described below. In addition, each department may have special requirements. Students should be familiar with the requirements in their own department.

Under certain circumstances Graduate School requirements for the Doctoral degree may be satisfied by means of substitution. In no case will a requirement be waived. Requests for the acceptance of substitutions should be made in the form of a petition to the Graduate Council. Each petition must have the approval of the Graduate Dean and the Department Chairman.

Residency Requirement – Each student working towards a doctoral degree must satisfy the residency requirement. The residency requirement can be satisfied by full-time study for at least two consecutive semesters or full-time study for at least one semester preceding or following summer session.

Time Requirement – A minimum of three academic years of study beyond the Bachelor's degree, or the equivalent, or two years beyond the Master's degree, must be devoted to the doctoral program.

Credit Requirement – A minimum of 60 semester hours of credit, exclusive of research credits, must be earned beyond the Bachelor's degree.

Transfer Credit – Transfer credit is limited to the credit equivalent of a Master's degree, except in special cases approved by the appropriate department chairman and the Dean of the Graduate School.

Statute of Limitations – After the student has been admitted to candidacy for the degree, a maximum of five years is allowed for the completion of all work.

Admission to Candidacy – Each student admitted to a doctoral program will be screened for candidacy after completing no less than eight credits and no more than 16 credits beyond the Master's degree with a minimum quality point average of 3.00 or higher. Departmental requirements for minimum quality point average may be set higher than the Graduate School requirement but in no case can it be lower.

Candidacy Examination – The candidacy examination, which may be written or oral, or both, and which may serve also as the final examination for the Master's degree (where a department requires such an examination), is administered by the department of the student's principal subject in his area or areas of specialization. This examination may not be taken until the student has completed at least one year of study beyond the Bachelor's degree. Scores on the examination must satisfy the student's dissertation committee.

The Dissertation Committee – The dissertation committee will supervise the student's program from the point at which he is admitted to candidacy through the defense of the dissertation. This will include the preparation of a plan of study, setting of the candidacy examination, setting of the comprehensive examination, general supervision related to satisfying degree requirements and general supervision of research proposal and the dissertation.

The Comprehensive Examination – The Comprehensive Examination is given to determine whether the student has made satisfactory progress in his study, and to determine the likelihood that he will pursue research for his thesis profitably and meet training requirements for the degree. It may be both written and oral and is designed by the candidate's committee to test the student's knowledge in his major field of specialization and supporting fields. It is not necessarily confined to the areas in which the student has taken course work at Indiana or elsewhere.

Foreign Language/Research Tool Requirement – The candidate for the Ph.D. degree is required to demonstrate a competent reading knowledge of two foreign languages appropriate to the general area of study or (upon recommendation of his advisory committee) a reading knowledge of one foreign language together with a comprehensive knowledge of its literature.

The candidate for the D.Ed. degree is required to pass a sequence of courses in statistics as prescribed by the major department. He must also demonstrate by examination, or through evidence of training satisfactory to the major department, a competence in computer language.

Research Proposal – After the candidate has passed the comprehensive examination, and after he has done extensive preliminary research, he must appear before his dissertation committee to defend his research proposal. A copy of this proposal, prepared according to directions supplied by the Associate Dean for Graduate Research, must be in the hands of the committee members at least two weeks in advance of the meeting. The proposal must be found satisfactory by all members of the committee before the candidate may proceed with the dissertation.

The Dissertation – A dissertation is required of all candidates for the Doctor of Education degree. The thesis must demonstrate the candidate's mastery of the area of his research and embody the results of an original investigation in his principal field of study. It must give evidence of an exhaustive study of a specialized field and must provide an authoritative statement of knowledge on the subject or produce a new interpretation by rearrangement or reanalysis of existing data. The work must provide a definite contribution to knowledge of sufficient importance to warrant its publication. He may schedule in research up to three credits a semester from the time at which the dissertation subject is approved by the dissertation committee.

Dissertation Review Meeting – After the doctoral thesis has been accepted by the candidate's research advisor, a finished copy is presented to the Dean of the Graduate School, from whom it circulates to all members of the dissertation committee. At a time convenient to all, the candidate shall then request a formal meeting of the dissertation committee in order to secure approval of the dissertation. The dissertation must be approved by each member of the dissertation committee.

Publication of the Dissertation – After the dissertation has been approved and accepted by the committee, three copies of the dissertation and two copies of an abstract must be submitted to the Graduate Council through the office of the Dean of the Graduate School. The major department may require an additional copy for the department archives. Instructions on the final form of the dissertation are available at the office of the Associate Dean for Graduate Research.

The dissertation must be microfilmed according to the plan provided by University Microfilms, Ann Arbor, Michigan.

Re-examination – A student who fails the candidacy examination, or any part of the comprehensive examination, or any of the examinations in foreign languages and/or research tools, may present himself for re-examination not earlier than one semester later nor later than one year after the time of the first examination. No student will be allowed a third examination without a recommendation to that effect from the department in which he has done his major work and the approval of the Graduate Council.

Application for Graduation — Formal application for graduation must be filed with the Dean of the Graduate School not later than two months prior to the date of the University Convocation at which the candidate expects to receive the Doctor's degree.

The Degree of Doctor of Philosophy

The Doctor of Philosophy degree is conferred for distinguished achievement in some particular field of scholarship and for demonstrated ability for independent research in a subdivision of this field. No specific number of course credits entitles a student to the degree.

Each department offering the degree has beyond the general requirements of the Graduate School its own special requirements to be met, and may, but only with the approval of the Graduate Council, waive or modify any of the general requirements. The department's detailed description of the degree should be consulted.

GENERAL SERVICE COURSES

COMPUTER SCIENCE

Howard E. Tompkins, Chairman; Buterbaugh, Maple, Shubra

CO 501 FUNDAMENTALS OF COMPUTER PROGRAMMING 2 credits
Introduction to digital computer programming. Development of sufficient skill to allow students to formulate and solve types of computer problems often encountered in graduate research projects.

CO 502 COMPUTERS IN EDUCATION 2 credits
Survey of digital computers with emphasis on computer usage in education. Applications in educational administration, pupil personnel services, educational research and the instructional process.

CO 510 NUMERICAL ANALYSIS I 3 credits
Analysis of algorithmic methods for solving linear and non-linear equations. Iterative techniques, finding roots for polynomials, and interpolation using difference formulas. Programming of several methods in an algorithmic language required. Prerequisite: Math through calculus and working knowledge of a programming language.

CO 511 NUMERICAL ANALYSIS II 3 credits
Analysis of algorithmic methods for numerical integration and differentiation, curve fitting, solutions of systems of equations, and matrix inversion. Solution of boundary value problems in ordinary and partial equations. Selected algorithms will be programmed in an algorithmic language. Prerequisite: Math through differential equations and working knowledge of a programming language.

SUPERVISED LABORATORY EXPERIENCE

Harold A. Dock, Director of Student Teaching

ED 540 SUPERVISION OF STUDENT TEACHING 2 s.h.
Designed for cooperating teachers and others working with student teachers, this course provides opportunity for the development of pertinent materials and for continuous evaluation of various aspects of the student teaching program. Stress is also given to evaluate procedures used in working with prospective teachers. Basic principles underlying an effective student teaching program are examined from a theoretical and applied viewpoint. Prerequisite: Teaching certificate and teaching experience.

RESEARCH

GD 515 ELEMENTS OF RESEARCH 2 s.h.
Selection of a research problem, collection of data, types of research, research report, and use of the library and computer in connection with research problems will be studied. Elements of statistics are introduced. This course provides background for preparation of thesis and enables the student to become an intelligent consumer of products of educational research.

NOTE: Some sections of GD 515 are taught by departments exclusively for their majors. Students should check the schedule of classes and program the appropriate section.

GD 550 THESIS 2-4 s.h.
Thesis: Students register for this course when writing the thesis. GD 550 should be scheduled for the semester that the student plans to

complete his work.

Recital: Graduate students in music education may prepare and perform a formal recital under the guidance of their private teacher in their major performing area. Approval for presentation of a recital in lieu of thesis must be secured from the graduate committee of the Music Education Department. A student should secure approval for this event early in his graduate program, but actual performance of recital should occur close to the end of his graduate program. GD 550 should be scheduled for semester that the student plans to give his recital.

GD 650 DISSERTATION 1-10 s.h. — Hours to be arranged

Students preparing a doctoral dissertation for credit must register for this course. The number of credits assigned and the extent of time for which research activity is scheduled depend upon nature and scope of the individual student's research problem as well as his total doctoral program

NOTE: Credits for both GD 550 and 650 if not completed during the semester scheduled are recorded as INCOMPLETE. They remain so until the paper is approved. THEY DO NOT AUTOMATICALLY REVERT TO THE GRADE OF "F" in a specific length of time. Also, GD 550 and 650 can be programmed above the regular load.

GD 540 INDEPENDENT STUDY 1-3 s.h.

GD 541 INDEPENDENT STUDY 1-3 s.h.

GD 545 SPECIAL TOPICS 1-3 s.h.

NOTE: None of these three courses should be scheduled unless prior approval has been obtained from the Graduate School.

STATISTICS

Melvin Woodard, Chairman, Department of Mathematics; Crooks, Shepler

GD 516 STATISTICAL METHODS I 3 s.h.

Consists of measurement and statistical techniques as used in teaching school administration, and common educational research. Basic descriptive statistics, including measures of central tendency, variability and correlation will be developed. Reliability and validity of test scores with emphasis on use of statistical techniques studied and their interpretation.

GD 517 STATISTICAL METHODS II 3 s.h.

Using computer programs a wide array of statistical procedures for educational research workers will be explored. Basic concepts of statistical inference and prediction will be reviewed, including regression analysis and prediction, hypothesis testing, analysis of variance and covariance, and partial and multiple correlation. Emphasis on use of computer and interpretation of computer print-outs along with understanding techniques employed. No computer knowledge is necessary. Prerequisite: GD 516 or equivalent.

PROGRAM CURRICULA: A to Z

ADULT EDUCATION

The Master's in Adult Education is the first program of this type to be offered in Western Pennsylvania. The program's aim is to develop qualified professionals in the growing area of adult and continuing education. The program will serve a dual purpose: 1) it will provide experience and education which will enable the student to undertake a professional position in adult education; and, 2) it will provide a solid base of concepts which will enable the student to proceed toward a doctorate at another institution.

The program objectives are to strengthen the education of adult educators by providing: a study of the historical and current roles adult education plays in American society; an understanding of methods, techniques, and variations best utilized to facilitate adult teaching and learning; and a supervised internship in an adult education agency of particular interest to the student, with the approval of the Adult Education faculty.

Courses 520 through 540 will provide the core studies coupled with Elements of Research and Thesis Writing, needed for the Master of Arts degree. Nine semester hours should be chosen around a special emphasis area. A total of 30 hours is needed to obtain the degree.

COURSE DESCRIPTIONS

AE 520 INTRODUCTION TO ADULT EDUCATION 3 s.h.
Definition of adult education, its history, an operational view of programs, understanding of its nature, and programming aspects.

AE 521 TEACHING IN ADULT EDUCATION 3 s.h.
Psychological and sociological factors affecting adults as learners; uses and adaptations of various methods and techniques for facilitating adult learning.

AE 522 SEMINAR IN ADULT EDUCATION 3 s.h.
Students are provided an opportunity to work cooperatively under guidance and supervision of an experienced adult educator. An intensive analysis is made of specific programs. Emphasis on literature of field and techniques of studying agency problems. Special projects are assigned to each student for intensive study.

AE 540 INTERNSHIP IN ADULT EDUCATION 6 s.h.
An opportunity for integrating observation and participation, theory and practice in an adult education agency. First-hand experience will be individualized for each student. A contract will be made by the student for specific objectives to be attained. The agency shall be chosen in cooperation with the professor.

ART AND ART EDUCATION

BENJAMIN T. MILLER*, CHAIRMAN; ROBERT C. SEELHORST*, DIRECTOR OF GRADUATE STUDIES: BALSIGER*, CLAY*, CRONAUER*, DeFURIO*, DONGILLA*, DROPCHO, INNES, JOHNSON*, LOVETTE*, RUSSELL, ROSS*, J. SLENKER*, R. SLENKER*, VISLOSKY*

***Members of the Department Graduate Committee**

The following curricula allow a mature student to select a program suited to his individual needs with the help of an advisor. This means the student and advisor can tailor-make a program of study.

Procedure for Admission (departmental approval)

1. The student must file a "letter of intent" stating the applicant's area(s) of specialization and reasons for these choices. The area of specialization is subject to review including one revision in consultation with the student's advisory committee. This review will take place between 8–12 s.h. This is the student's responsibility.
2. For admission to the M.Ed. program a student must have Level I Certification or the equivalent. To be admitted to the M.Ed. and Certification or the M.A. in studio art the candidate must possess a B.S. in Art Ed., B.F.A., or B.A., with a studio major or equivalent. This will be determined by the departmental admissions committee.

Advisory

There are four program advisors. The student will be assigned to one of the advisors who will assist him in planning his program of study.

Program Advisors	Students
Thomas J. Dongilla	A – F
Joanne P. Lovette	G – L
Robert E. Slenker	M – R
Robert J. Vislosky	S – Z

Advisory Committee: Each student will have an advisory committee of: 1) the program advisor, 2) a professor from his area of specialization, 3) a faculty member of the student's choice, and 4) either the department chairman or the director of graduate studies. This committee will review the student's progress and make the recommendation for candidacy. The professor from the area of specialization will act as the committee chairman and will be chosen by the director of graduate studies or the department chairman.

Research and Independent Study

Independent Study: A student may select a specific problem for 1 or 2 s.h. and pursue it in off campus study with the help of an advisor. The student will present a proposal for approval to the advisor of his choice and the director of graduate studies. If the proposal is for 3 s.h. or more, it will be reviewed by the advisory committee and juried at the end by the same committee.

Thesis: Under both thesis and independent study the final product may be a one-artist show of the minor and major area.

The show will be juried by the thesis committee which will be composed of the advisory committee plus the associate dean for research of the graduate school. The show will be accompanied by a written statement, sketch books, catalogue, notes or other method of reporting deemed appropriate by the committee. All shows will leave some permanent evidence of their existence such as slides, photographs, or catalogs.

MASTER OF EDUCATION DEGREE

Art Education – select 2 – AR 510, 511, 512, 514	6 s.h.
Foundations of Education – select 1 – FE 511, 512, 513, 514, 515	2 s.h.
Research in Art Education – AR 513	3 s.h.
Elements of Research – GD 515	2 s.h.
Thesis – GD 550	2 or 4 s.h.
Studio	8 s.h.
Electives	3 or 6 s.h.
Independent Study – GD 540 or 541	1 – 6 s.h.
	30 s.h.

MASTER OF ARTS DEGREE

Studio Major – AR 540 – 568	no less than	12 s.h.
Studio Major – AR 540 – 568	no less than	6 s.h.
Art Seminar – AR 515		3 s.h.
Thesis – GD 550		2 or 4 s.h.
Electives		3 or 6 s.h.
Independent Study – GD 540, 541		1 – 6 s.h.
		30 s.h.

MASTER OF EDUCATION PLUS CERTIFICATION

Undergraduate requirements

Elementary certification – AR 317, EL 421, EL 422	11 s.h.
Secondary certification – AR 317, ED 441, ED 422	11 s.h.
El. & Sec. certification	20 s.h.

Graduate requirements

Seminar in Learning Resources – LR 500	3 s.h.
Educational Psych. – EP 504 or 518	3 s.h.
Foundations of Ed. – FE 511 or 512, or 513, 514, 515	2 s.h.
Art Ed. – select two – AR 510, AR 511, AR 512, AR 514	6 s.h.
AR 513	3 s.h.
GD – 515	2 s.h.
GD 550	2 or 4 s.h.
Studio	8 s.h.
Independent Study	1 – 6 s.h.

The number of s.h. in each of these programs represents the minimum. The student's committee reserves the right to recommend more.

COURSE DESCRIPTIONS

AR 510 ART AND THE EXCEPTIONAL CHILD 3 s.h.
Designed to consider characteristics and needs of the mentally retarded and the intellectually gifted child with particular emphasis on art aspects of their education (Vislosky, R. Slenker)

AR 511 ART CURRICULUM DEVELOPMENT IN ART EDUCATION 3 s.h.
A seminar and study of curricula at all levels. Particular attention given to individual needs of class participants in development of curricula pertinent to their own teaching situations. For those students who have not yet taught, theoretical and practical problems will be examined (Lovette, McVitty).

AR 512 SUPERVISION AND ADMINISTRATION IN ART EDUCATION 3 s.h.
Responsibilities, functions and duties of Art Supervisors and Administrators (Lovette, Vislosky).

AR 513 RESEARCH IN ART EDUCATION 2 s.h.
Required of all Art Education majors. Reviews past and present research focusing upon the methodologies pertinent to the field. Prerequisite for this course, GD 515, is to be scheduled within the first four to eight semester hours. AR 513 must be taken as soon after as possible but within the first 12 semester hours (McVitty, Seelhorst, Vislosky).

AR 514 HISTORY AND PHILOSOPHY OF ART EDUCATION 3 s.h.
Considers art education in Europe, United States and Canada, designed to give the student background (McVitty, Lovette, Vislosky).

AR 515 ART SEMINAR 3 s.h.
Opportunity for student to discuss problems in art related to his studio interests. Thesis proposals will also be prepared.

AR 516 DIRECTED STUDIES 0-4 s.h.
Offered in instances where a particular course is needed by a student, but is not on the regular schedule rotation. Approval must be secured from the advisor, the instructor involved, and the Graduate Committee in Art Education.

AR 522 ART IN AMERICA 3 s.h.
Surveys American art and its relation to development of American ideas and ideals. (Innes, Seelhorst)

AR 523 SEMINAR IN ART CRITICISM 3 s.h.
Explores various philosophic theories of art, and art products. An attempt not only to relate these theories to senses and form itself, but also to technical, psychological, and cultural values. Primary concepts explored are play, illusion, imitation, beauty, emotional expression, imagination, empathy, creativity, and experience. Some time will be given to forms of art that are not primarily visual, including music, dance, literature and poetry. (Seelhorst)

AR 524 ART OF THE EAST 3 s.h.
Nature of Eastern Art's meaning, and place in contemporary world culture. (Clay)

AR 525 ARCHITECTURAL INFLUENCES IN A CONTEMPORARY SOCIETY 3 s.h.
Experimental problems in structure and aesthetics as related to architecture. Attempts are made to search out the historical roots of many contemporary styles of architecture. (Seelhorst, R. Slenker)

AR 526 EXOTIC ART AND ART IN LATIN AMERICA 3 s.h.
Art of other cultures, sometimes called primitive, in order to recognize nature of the artistic contribution of these peoples. (Clay)

AR 527 RENAISSANCE ART 3 s.h.
Study of great art achievements of Renaissance in fields of painting, architecture, sculpture, and the minor arts. Achievements in humanities and their relationships are studied against background of social, economic and political developments of the era. (Balsiger)

AR 528 WORLD ART SINCE 1875 3 s.h.
Discoveries and advances in artistic expression in modern times. Subject matter for study may be found in any or all of the arts. (Seelhorst, Innes)

All art history courses are open as electives to all students.

AR 540 GRADUATE STUDIO IN CERAMICS 3-18 s.h.
Total working process – selection and preparation of clay bodies, manipulation of clay to achieve expressive form, exploration of decorative techniques. Acquiring familiarity with glaze materials and ability to formulate glazes, as well as control of firing process are requisites. Search for sources of equipment and supplies lead into related aspect of studio planning. (Ross, McVitty, Dongilla)

AR 544 GRADUATE STUDIO IN FABRICS 3-18 s.h.
Fundamentals of fabric construction and processes. Emphasis on experimental approaches to fabric design and construction. Designed to meet the needs of beginning as well as advanced students.

AR 547 GRADUATE STUDIO IN JEWELRY AND METAL WORK 3-18 s.h.
Advanced study dealing with specialized problems in design and execution of metal work and jewelry. A thesis may be developed based upon research in one of areas relating to this field, history, materials, tools, processes, or teaching techniques of the craft. (Cronauer, J. Slenker)

AR 550 GRADUATE STUDIO IN SCULPTURE 3-18 s.h.
An advanced course in which students are expected to work on more complex problems of sculpture. A student may explore one or several sculpture or modeling media. (Dongilla, Slenker, Vislosky)

AR 553 GRADUATE STUDIO IN CRAFTS 3-18 s.h.
Specialized study and experiences are related to design and execution of problems relating to wood as a crafts material. Opportunity is presented for more intensive exploration of materials and processes of this craft employing both hand and power tools. (Dropcho, Cronauer)

AR 561 GRADUATE STUDIO IN DRAWING 3-18 s.h.
Drawing as a language and continued development of skill in communication and expression in all kinds of materials and media. Drawing as an intimate work of the artist will be stressed. (Ben-Zvi, Innes, Staff)

AR 562 GRADUATE STUDIO IN OIL PAINTING 3-18 s.h.
Traditional and contemporary methods and techniques in area of plastic painting media. Composition, in relation to the modern painters' problems. Opportunity is presented for exploration and specialization in depth as well as breadth. (Cronauer, Staff)

AR 565 GRADUATE STUDIO IN WATER COLOR PAINTING 3-18 s.h.
Painting in transparent water color, gouache, mixed media, and with new water soluble paints, such as casein and acrylic polymer tempera. Traditional, current and experimental approaches with emphasis on design and emotional content. (Cronauer)

AR 568 GRADUATE STUDIO IN PRINT MAKING 3-18 s.h.
Modes, media, material, techniques and processes of graphic arts and their use in expression. The student may concentrate on intensive exploration of one media in depth or explore a number of media for breadth of experience. (Johnson, Staff)

Studio courses may be taken for a total of 18 s.h. in one studio. No more than 6 s.h. in one studio may be taken during any one semester.

BIOLOGY

FRANCIS W. LIEGEY, CHAIRMAN; WALTER W. GALLATI, DIRECTOR OF GRADUATE STUDIES: ALICO, BAKER, DIETRICH, FORBES, GOLD, HUE, HUMPHREYS, MERRITT, MILLER, PICKERING, SCHROCK, STAPLETON, VALLOWE, WAECHTER, ZENISEK

Requirements for Admission – To be admitted to the biology department, the applicant must have completed the requirements for a Bachelor's degree from an accredited college or university which should include one year inorganic chemistry, one semester or organic and one semester of biochemistry, one year of physics, and mathematics through one semester calculus or statistics. Applicants with undergraduate deficiencies may be required to register for appropriate courses.

The Requirements for Candidacy for an M.Ed. or an M.S. in Biology are – the satisfactory completion of 15 semester hours of graduate work in the biological sciences. For the M.S. student at least six hours must be in core courses.

The selection of an advisor, and, with the advisor's approval, a committee of at least two additional faculty members to guide the candidate in completing a tentative program and selecting a thesis problem or a project.

An official application for admission to candidacy, including the tentative program which has been approved by the advisor, must be submitted to the Biology Department graduate committee.

Candidates are expected to maintain an average of not lower than B. Continuance in the graduate program for those receiving two course grades below the minimum is contingent upon favorable review of the graduate committee.

CURRICULUM FOR THE MASTER OF EDUCATION DEGREE IN BIOLOGY

Students working for this degree will complete 30 semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration – 16-22 semester hours to be selected from BI 500 through BI 612, CH 651 and GS 570. BI 658 (Biology Practicum) is strongly recommended.

II. Professional Studies – 4-10 semester hours to be selected from LR 500 (Seminar in Learning Resources), SE 531 (Psychology of the Exceptional Child), or EP 580 (Studies in Pupil Adjustment); or may be satisfied in whole or in part by a research thesis in education (see IV below).

III. Foundations of Education – 2 semester hours to be selected from FE 511, 512, 513, 514 or 515 (Historical, Philosophical, Social, Comparative Foundations of Education or Decision Making in Curriculum Development).

IV. Research Requirement – 4-6 semester hours from either BI 600 (for a biology thesis topic) or GD 515 (for an educational thesis topic). Every candidate must in addition present either a biologically oriented research thesis (2–4 credits) or an educationally oriented project (2 credits) on a topic approved by his advisor (GD 550 – Thesis, 2-4 credits).

CURRICULUM FOR THE MASTER OF SCIENCE DEGREE IN BIOLOGY

Students working for this degree will complete 30 semester hours of work in accordance with the following divisions:

I. Core Courses – 18-20 semester hours. BI 530 (Instrumentation), BI 600 (Methods of Research in Biology), BI 612 (Seminar) and GD 550 (2-4 credits in thesis) are required courses. The remaining 10 hours of core credits come from one morphology-taxonomy course (chosen from BI 536, 540, 546, 551, 554, 557, 559 or 560), one physiology course (chosen from BI 558, 561, 562, 563 or 581), and one ecology course (chosen from BI 548, 556 or 586).

II. Elective Courses – 10-12 semester hours to be selected with the approval of the advisor from BI 500 through BI 586 (with the exception of BI 568) or from related science and mathematics courses.

III. Resident Requirements for the M.S. – The candidate must be in residence for at least seven consecutive months of full-time work or the equivalent as determined by the candidate's advisory committee.

IV. Research Requirements for the M.S. – Every candidate must schedule Methods of Research in Biology (BI 600) as part of his research requirement. This should be done early in his program.

Every candidate must present a research thesis on an original topic approved by the candidate's advisory committee. This is programmed as GD 550 (thesis) for 2 to 4 credits.

V. Requirements for Completion of the M.S.

1. a. All students in the M.S. program in the Biology Department must pass a comprehensive examination administered by the department graduate committee. The purpose of this examination is to assure that all of our graduates have a well proportioned knowledge of the field of Biology. The examination will also help point out the student's major areas of inadequate knowledge or training.
   b. This examination is offered at a specified time twice each year (toward the middle of each semester). Any time after the first semester of graduate studies, the student may signify his intentions of taking the examination by informing the graduate committee.
   c. This will be the only comprehensive examination for the Master of Science degree.
2. After the thesis has been accepted in its final written form by the candidate's committee and the Graduate School, the candidate is expected to present a public seminar reporting the results of his research.

COURSE DESCRIPTIONS

In many courses in the Biology Department, additional laboratory time may be required beyond the regularly scheduled periods.

BI 500 SPECIAL STUDIES 1-6 s.h.
Consists of semi-independent studies under guidance of an instructor. Maximum credit in any one area is six (6) semester hours. Time and class hours will be arranged by instructor involved. Prerequisite: Permission of instructor.

BI 522 BIOMETRY 3 s.h.
The kinds and treatment of biological data and application of mathematical principles in treatment of these data, rather than a theoretical development of mathematical concepts. Data will be analyzed from representative measuring instruments, e.g. spectrophotometry, manometry, linear measurement, etc.

BI 526 MOLECULAR GENETICS 3 s.h.
Study of chemical structure of the gene in relation to its molecular function in control of specific protein biosynthesis. Emphasis will be placed on genetic systems of bacteria, fungi, and viruses. Prerequisites: genetics, organic chemistry and biochemistry or permission of instructor.

BI 530 INSTRUMENTATION 3 s.h.
An introduction to instrumental technique designed to aid in development of skills employed in biological research.

BI 536 COMPARATIVE PLANT MORPHOLOGY 3 s.h.
Procedures, general principles and objectives of comparative plant morphology. Emphasis on relationships between morphology, taxonomy and experimental morphogenesis in vascular plants.

BI 540 PROTOZOOLOGY 3 s.h.
Common and representative genera of all groups of free-living protozoa. Emphasis is placed upon structure, physiology, ecology and life histories of these organisms. An independent research project is required.

BI 545 MICROTECHNIQUE 3 s.h.
Procedures involved in production of microscope slides. Techniques of preparing whole mounts, microtome sections and serial sections of both plant and animal materials.

BI 546 DENDROLOGY 3 s.h.
Study of the woody plants as to their identification, distribution, ecology, culture, anatomy, physiology, mensuration and utilization.

BI 548 PLANT ECOLOGY 3 s.h.
Nature and distribution of vegetation in relation to environmental factors. Field investigations of local plant communities constitute bulk of lab work. Prerequisite: field botany, plant taxonomy or general knowledge of local flora.

BI 551 TAXONOMY OF PLANTS 3 s.h.
Includes collection, identification, and classification of vascular plant species with special emphasis on family characteristics and phylogeny. Prerequisite: Plant Biology.

BI 553 PRINCIPLES OF ANIMAL TAXONOMY 3 s.h.
Study of classification system and its application to identification of animals. Basic principles of taxonomy rules of nomenclature, a synoptic history of classification and the "old" and "new" taxonomy will be included. A taxonomic field study is required.

BI 554 ADVANCED ORNITHOLOGY 3 s.h.
A detailed study of bird populations, behavior, and movement including the annual cycle. Prerequisites: identification by site and song of local birds.

BI 556 ANIMAL ECOLOGY 3 s.h.
Effect of environmental factors on animals, animals as members of communities, their trophic relationships, their ecologic distribution, population dynamics, and aspects of animal behavior. A field or lab problem is required.

BI 557 ANIMAL MORPHOGENESIS 3 s.h.
Factors that influence and control the differentiation of organs, tissues, and cells. Emphasis is placed on experimental procedures and methods. Prerequisites: Embryology or Comparative Anatomy, Organic Chemistry or Biochemistry, and Genetics.

BI 558 ENDOCRINOLOGY 4 s.h.
Phylogeny, embryology, micro-anatomy, and physiology of the endocrine tissues. Prerequisites: course in anatomy and physiology.

BI 559 ADVANCED ENTOMOLOGY 3 s.h.
Insect morphology, including external and internal organization of different species of insects. Comparisons and contrasts among species will be included as well as the relationships of social insects and their adaptations. Prerequisite: Introductory Entomology.

BI 560 HERPETOLOGY 3 s.h.
A comprehensive survey of the classes Amphibia and Reptilia, including their classification, structure, origin, evolution, phylogenetic relationships, distribution, and natural history. Special emphasis is placed on the herpetofauna of Pennsylvania.

BI 561 GENERAL PHYSIOLOGY 4 s.h.
A molecular approach to quantitative analysis of the mechanisms of functional operation and coordination in living organisms. Emphasis is directed toward the chemical and physical principles operating at the primary functional units of organization. Prerequisites: course in Physiology, Biochemistry, Calculus. (Two hours lecture and four hours lab.)

BI 562 ANIMAL PHYSIOLOGY 4 s.h.
The events of digestion, molecular transport of nutrients and wastes, gaseous exchange, excretion, muscular movement and control by endocrines and nervous tissue. Prerequisites: Animal Biology.

BI 563 PHYSIOLOGY OF PLANTS 4 s.h.
A comprehensive study of physiological bases for organization and function of living plants. Current literature is emphasized. Lab exercises are designed to be complementary to lecture material and to be of practical value. Prerequisite: Biochemistry. Closed to students with undergraduate Plant Physiology, BI 351.

BI 568 BIOLOGY PRACTICUM 2 s.h.
Designed for high school biology teacher. Preparation of culture media and solutions, problems and techniques in dealing with demonstration material, handling and housing of plants and animals, safety in the lab and field, and maintenance of equipment. Emphasis on development of on-going experiments and research projects. Handbooks and other resource materials useful in the "lab approach" to biology will be given special attention.

BI 572 RADIATION BIOLOGY 3 s.h.
Basic aspects of nuclear physics, phenomena of radioactive isotopes and biological effects of such isotopes. Lab work utilizes instruments for detection and measurement of radioactive nuclides used in biological experimentation. Prerequisites: two years Biology, one year Physics, and General, Organic and Biochemistry.

BI 575 MAMMALOGY 3 s.h.
A general discussion of mammals emphasizing systematics, distribution, and structural and functional modifications related to evolution of this group. Lab work samples numerous techniques that can be applied to mammalian biology. A paper is required.

BI 576 PARASITOLOGY 3 s.h.
The parasitic protozoa, flatworms and roundworms, Major emphasis upon species infesting man and includes their structure, physiology, ecology, life cycles and pathogenicity. Lab includes some dissection of vertebrate hosts and recovery of their parasites. Arthropods involved in parasite transmission are also included. Prerequisites: one year Biology, Vertebrate and Invertebrate Zoology.

BI 578 MYCOLOGY 3 s.h.
The systematics, morphology, and physiology of fungi, with emphasis on economically important and experimentally useful Myxomycophyta and Eumycophta. Lab includes physiology and genetics of fungi and collecting, culturing and identifying of representative species. Not open to students with undergraduate BI 381, Mycology.

BI 581 MICROBIAL PHYSIOLOGY 4 s.h.
Physiological reactions involved in growth, reproduction and death of

microbes. Metabolism of carbohydrates, proteins, vitamins and fats, enzymes, oxidation-reduction potentials, energy relationships, membrane potentials and required nutrients. Prerequisites: Microbiology and Biochemistry.

BI 582 PATHOGENIC MICROBIOLOGY 3 s.h.
Study of disease caused by microorganisms with emphasis on human pathogens. Both epidemiology and aspects of host-parasite relationships. Lab stresses methods of isolation and identification of pathogens. Prerequisite: Microbiology.

BI 583 IMMUNOLOGY 3 s.h.
Physical and chemical properties of antigens and antibodies; nature of antigen-antibody interactions; mechanism of antibody formation; and immune reaction in disease. The lab employs serological techniques. Prerequisites: Biochemistry and Microbiology.

BI 586 TAXONOMY AND ECOLOGY OF BACTERIA 3 s.h.
Isolation, cultivation, classification and ecology of major groups of bacteria. Special emphasis to principles of bacterial taxonomy and ecology. Prerequisite: Microbiology.

BI 600 METHODS OF RESEARCH IN BIOLOGY 2 s.h.
The student will select and plan a research project or thesis problem in biological area; will develop familiarity with general biological literature; will conduct a literature search on his selected topic; will write a thesis or project proposal following Graduate School guidelines and the AIBS style manual; and will give an oral presentation of the proposal.

BI 612 BIOLOGY SEMINAR 1 s.h.
An opportunity to become acquainted with various areas of current research in biology. One hour meeting per week.

MI 500 PROBLEMS IN MARINE SCIENCE 3 s.h.
Independent study for the advanced student in marine sciences. Topics are selected from areas offered by the Marine Consortium and studies are directed by the instructor in that area. Prerequisite: Consent of Instructor.

BUSINESS

DENNIS D. TIGER, DIRECTOR OF GRADUATE STUDIES; DONALD J. ROBBINS, CHAIRMAN – BUSINESS MANAGEMENT DEPARTMENT; BEAUMONT, COOPER, MAHAN, McCLELLAND, MOREAU, PATTERSON, PLIVELIC

DENNIS D. TIGER, CHAIRMAN – BUSINESS AND DISTRIBUTIVE EDUCATION DEPARTMENT; POLESKY, REIFEL, SHILDT, SPENCER, STEVENSON, WOOMER.

The School of Business offers programs leading to the degrees of (1) Master of Education in Business and (s) Master of Science in Business. The Master of Education program is designed primarily to permit the business teacher to broaden his understanding of the business world and to study his teaching procedures in the light of new experience. The Master of Science program is designed primarily for businessmen, industrial personnel, and government employees who are interested in continuing their academic study in business.

Upon admission to the Graduate School each student is tentatively assigned an advisor. The advisor assists the student in scheduling his program of studies. If the tentative assignment is mutually agreeable to the student and the advisor, the arrangement is continued.

In both the Master of Education Program and the Master of Science in Business Program, 12 to 16 credit hours are to be taken in the business concentration area. These courses should be scheduled as early as possible in the student's program. Among

the first courses, the student should take BU 510, Business Communications and Report Writing. For M.Ed. students, the course GD 515, Elements of Research, must be taken prior to BU 522, Seminar in Business Education.

Prior to his admission to candidacy for the degree of Master of Education in Business or Master of Science in Business, the student must take the Graduate Record Examination aptitude test. Information about this examination can be obtained from the Graduate School.

Business teachers with the proper prerequisites can earn, at the graduate level, certificates in Marketing, Data Processing, and Distributive Education. They may also earn an endorsement of their present vocational certificate which qualifies them to be a Cooperative Education Coordinator.

Distributive Education teachers seeking to broaden their background in marketing, merchandising, and management may pursue the Master of Education Degree emphasizing these areas. Individuals without an understanding degree in business may pursue graduate work leading to certification as Distributive Education teachers.

CURRICULUM FOR MASTER OF EDUCATION DEGREE IN BUSINESS

The student must take seven hours — BU 550, BU 560 or 561 and BU 552; two hours to be selected from FE 511, 512, 513, 514 or 515 (course descriptions on page 70) and 12-15 hours* from the following: BU 500-505; 507; 510**; 512; 514; 520-523; 525; 531-534; 536; 537; 540-542; 545; 553; 554; 570. GD 515 and GD 550 for two to four hours must be taken. BU 510 (Business Communications and Report Writing), GD 515 (Elements of Research), and BU 552 (Seminar in Business Education) must be taken before GD 550 (Thesis). The student may select a 2-3 hour elective.

Courses in the Business Education Core Area and Business Education and Related Courses Area should be scheduled early in the student's program.

*Students who elect to undertake a two-credit thesis are required to complete a minimum of 15 credits in the "Business Education and Related Courses" Area.

**Required of all students.

CURRICULUM FOR MASTER OF SCIENCE DEGREE IN BUSINESS

From 18-22 hours* must be taken in the following: BU 500-505; 507; 510**; 512; 520-525; 531-534; 536-537; 541-542; or 545. Courses in this area should be scheduled early in the student's program. From two to six hours must be selected from the following: CE 546, EC 501, 525, 551-555, GD 541, GE 542, HE 530, HE 560-561, MA 575, MA 582. PC 514 or PC 517. Courses in this area should be worked into the student's

program as he progresses toward completion of the degree. Other business related courses may be taken subject to the approval of the advisor and the director of graduate studies.

From six to eight hours must be taken in the research area: GD 515, 517 and 550. BU 510 (Business Communications and Report Writing), GD 515 (Elements of Research), and GD 517 (Statistical Methods I) must be taken before GD 550 (Thesis). Students may select a few electives for two to four hours.

* Students who elect to undertake a two-credit thesis are required to complete a minimum of 20 credits in the Business Concentration Area.

** Required of all students.

COURSE DESCRIPTIONS

BU 500 ACCOUNTING SYSTEMS 2 s.h.
Accounting principles applied to constructing accounting systems. Special attention given to problems of management as they relate to accounting systems by developing a system to give management the information desired for effective operation of business.

BU 501 PRINCIPLES OF TAX ACCOUNTING 3 s.h.
Introduction to Federal Tax Laws which develops an understanding and working knowledge of Federal Tax Laws and Regulations applicable to individuals, single proprietorships, and partnerships.

BU 502 ADVANCED TAX ACCOUNTING 2 s.h.
Develops further knowledge of Federal Income Tax law with emphasis upon corporate returns, estates and trusts, federal estate tax and gift tax. Prerequisite: BU 501 or equivalent.

BU 503 FINANCIAL STATEMENT ANALYSIS 2 s.h.
Detailed analysis and interpretation of financial statements with advanced problems supporting theory presented. Particular types of statements as they apply to public utilities, industrials, and moneyed corporations are introduced. Prerequisite: BU 352, Corporate Accounting, or equivalent (9 semester hours).

BU 504 BUDGETING AND COST ANALYSIS 3 s.h.
Theory, preparation, and use of budgets, analysis of cost variances, direct costing, and extensive analysis of various cost-control and profit-planning programs. Prerequisite: BU 353, Cost Accounting, or equivalent.

BU 505 ADVANCED ACCOUNTING 3 s.h.
Study of accounting problems of specialized nature, including the application of funds statement, consignments, installment sales, receivership accounts, agency and branch accounting, and corporate combinations. Prerequisite: BU 352, Corporate Accounting, or equivalent (9 semester hours).

BU 507 MANAGEMENT ACCOUNTING 3 s.h.
Designed for management personnel who are not accountants but need to understand and use accounting information in their decision-making process. Emphasizes management of accounting information that requires the application of full cost data, differential costs and revenues, and responsibility accounting data. (Available to students with less than nine hours of accounting.)

BU 510 BUSINESS COMMUNICATIONS & REPORT WRITING 2 s.h.
Study and comparison of effective written communications. Emphasis on positive approach, clear statements, good form and structure. Organization and preparation of reports used in education, business, and government. Techniques of collecting, interpreting, and presenting information useful to executives.

BU 512 OFFICE ORGANIZATION AND MANAGEMENT 2 s.h.
Duties and responsibilities of office manager; principles of practical office management and their application. Includes survey and analysis

development of manuals and their use; selection, training, pay and promotion of office employees; controlling expense and measuring office efficiency; quality and quantity standards; purchase and use of equipment; and report writing.

BU 514 EXECUTIVE SECRETARIAL TRAINING 2 s.h.
Stresses application of secretarial skills and knowledges and importance of good human relations in offices. Develops methods of complimenting secretarial training so that high school graduates may become competent, proficient, and well-adjusted secretaries.

BU 520 RETAIL ORGANIZATION AND MANAGEMENT 2 s.h.
Directed toward problems of retail management. Includes present-day trends in retailing, personnel management, merchandise control, pricing, promotion, services, accounting, and expense control.

BU 521 MARKETING 2 s.h.
Study of risks, costs, and methods of distribution including analysis of such problems as research, competition, pricing, and laws in marketing goods from manufacturer or producer to consumer.

BU 522 SALES PROMOTION AND ADVERTISING 2 s.h.
Basic principles of sales promotion and advertising together with consideration of the major problems encountered in management of activities. Emphasizes determination of basic promotional strategy; selection of advertising media; determining advertising appropriations; and advertising research.

BU 523 MARKETING RESEARCH 2 s.h.
Research procedures and techniques applicable to problem solving in marketing field. Critical analysis of research techniques with considerable emphasis placed on use of information gathered. Prerequisite: Marketing.

BU 525 THE PROCESSES OF COLLECTIVE BARGAINING 3 s.h.
Survey of labor movement history in United States, current laws, principles and procedures in use in modern collective bargaining and evolving trends in union-management relations in all segments of United States economy including blue and white collar, private and public sector.

BU 531 PRINCIPLES OF INVESTMENT IN SECURITIES 2 s.h.
Introduces many forms of investment possibilities which exist. Attention is given to operation of stock markets, concepts and terminology of investing, mutual funds and their function, investment clubs and problems involved in making investments through brokers, bankers, and stock promoters

BU 532 CURRENT BUSINESS ECONOMIC PROBLEMS 2 s.h.
Provides opportunity for students to gain insights into relationship of business to many facets of society, impact of major societal groups upon business, and nature of obstacles that businessmen face in day-to-day operations. Review and analysis of basic economic concepts and principles will serve as a basis for study of selected economic problems of current interest and concern to business and society.

BU 533 CASE PROBLEMS IN BUSINESS LAW 2 s.h.
Deals with solution of case problems as applied to various topics in the field of business law. Prerequisite: BU 235, Business Law I, or equivalent.

BU 534 CONSUMER ECONOMIC PROBLEMS 2 s.h.
Program for the education of intelligent consumers in how to gain the maximum satisfaction from goods and services. An effort will be made to develop an appreciation of the problems of the producer and distributor as well as those of the consumer.

BU 536 AUTOMATED DATA PROCESSING I 4 s.h.
Covers theory and operation of automated data processing equipment. Input devices will include key punch, paper tape punch, and keyboard to magnetic tape equipment. Semi-automatic accounting machines and ledger posting devices will be studied. Output devices such as reader-punch, reproducer, intepreter and other equipment will be covered. 2 hr. lecture and 2 hr. lab.

BU 537 AUTOMATED DATA PROCESSING II 4 s.h.

Develops principles of Cobol Language Programming with specific applications for teachers of business and distributive education. Emphasis placed on computer-based instruction and programmed instruction as used with console typewriter and remote terminals. Value of library programs will be demonstrated. 2 hr. lecture and 2 hr. lab. Prerequisite: BU 536 or its equivalent.

BU 540 COOPERATIVE WORK EXPERIENCE IN OFFICE OR DISTRIBUTIVE OCCUPATIONS 4 s.h.

Students who do not have extensive business experience are given the opportunity to work full-time for six weeks during the summer in a business position under University supervision. Evening seminars are held weekly to discuss problems related to work experience program and cooperative plan of vocational instruction. A written report of the experience will be required.

BU 541 PRINCIPLES OF MANAGEMENT 2 s.h.

Study of development, nature, and meaning of basic functions of management. Emphasis will be placed upon functional activities of an organization at all levels of management and the application of these principles.

BU 542 HUMAN RELATIONS IN BUSINESS 2 s.h.

Study of human motivations and their constructive application to all aspects of business. Psychological basis of human relations will be developed as it applies in the business world. Major topics include employer-employee relations, labor relations, stockholder relations, customer relations, community relations, and public relations.

BU 545 CASE PROBLEMS IN BUSINESS HUMAN RELATIONS 2 s.h.

Application of principles of personnel management in solution of problems in human relations. Students will be required to solve realistic problems in human relations found at all echelons of management. Emphasis will be placed upon actual problems encountered in day-to-day work activities. Prerequisite: BU 542, Human Relations in Business, or equivalent.

BU 550 PRINCIPLES AND PROBLEMS OF BUSINESS EDUCATION 2 s.h.

Surveys basic principles and practices of business education. Among the topics considered are: history of the high school business program, purposes, attitudes of management and labor toward education, relationship of general education to business education, and trends in the field.

BU 552 SEMINAR IN BUSINESS EDUCATION 2 s.h.

Critical examination and evaluation of current literature and research in business education. Students will conduct an extensive study of literature representative of the business field and an intensive study in one or more specialized areas compatible with his professional interests and activities, investigating procedures used in current and outstanding research studies.

BU 553 SUPERVISION OF BUSINESS VOCATIONAL EDUCATION 2 s.h.

Problems of organizing, directing, and supervising a vocational education program in business with emphasis placed on implementation of programs in distributive and office education as proposed under the various Vocational Acts.

BU 554 COOPERATIVE VOCATIONAL OFFICE AND DISTRIBUTIVE EDUCATION 2 s.h.

Develops administrative procedures necessary for planning, organizing, and coordinating cooperative vocational educational programs in business and distributive education. Topics include historical background, program development, supervision, public relations, teacher-coordinator and his job and educational outcomes.

BU 560 IMPROVEMENT OF INSTRUCTION IN SECRETARIAL COURSES 3 s.h.

Provides business teachers with a working philosophy and practical approach to teaching of secretarial subjects — shorthand, typewriting, transcription, and office practice. Teaching procedures basic to development of vocational proficiency in shorthand, typewriting, transcription, and office practice including: content, methods, teaching aids, available

instructional materials, measurement of skills, and standards of achievement.

BU 561 IMPROVEMENT OF INSTRUCTION IN ACCOUNTING AND BASIC BUSINESS COURSES 3 s.h.

Problems and techniques in teaching accounting and basic business courses, including objectives, place and purpose of accounting and basic business courses, curricular organization, teaching techniques, instructional materials, resource materials, course standards, testing, and evaluation. For experienced or prospective high school, vocational-technical school, and community college teachers of accounting, general business, consumer economics, business mathematics, economics, and business principles and management.

BU 570 ECONOMIC BACKGROUNDS OF BUSINESS 2 s.h.

Overview of economic environment in which business and other agencies operate. Students will gain a broad perspective of business operation through such topics as business organization and management, consumption of goods, business risks, business cycle, budgeting and investments. Not open to Business majors, but is designed as a general studies course for other programs.

BU 576 SPECIAL STUDIES IN BUSINESS AND DISTRIBUTIVE EDUCATION 1-6 s.h.

Special topics in business and distributive education. Topic will be announced well in advance of registration.

CHEMISTRY

STANFORD L. TACKETT, CHAIRMAN: ROBERT A. PATSIGA, DIRECTOR OF GRADUATE STUDIES; BALLAS, BORDAS, CHRISTODOULEAS, COLEMAN, COSTA, FAZIO, HARTLINE, KOLACZKOWSKI, MARKS, McKELVEY, NELSON, SCROXTON, SYTY, WUNZ, ZAMBOTTI, ZIMMERMAN.

The Chemistry Department offers three different degree programs on the masters level: the Master of Education and Master of Science degrees in chemistry and the Master of Arts degree in industrial chemistry.

The Master of Education program is designed for the secondary school teacher to afford the teacher the opportunity to gain more knowledge of chemistry and keep abreast of a rapidly changing field. The major emphasis is on subject matter. The student may enroll on either a full- or part-time basis.

The Master of Science degree is for the chemist who intends to pursue further graduate work leading to a Ph.D. or who intends to work as a professional chemist and desires to become more competent in chemistry. This degree is research oriented and successful completion of an experimental thesis is required. Also, two consecutive semesters of residency are required.

The Master of Arts degree is designed to meet the needs of the chemist who is currently a full time employee of the chemical industry and who wishes to strengthen his knowledge in those areas relevant to his employment. The emphasis here is on course work.

Four core courses, one in each of the areas of inorganic, organic, analytical, and physical chemistry, are required in all

three degree programs.* Beyond this point the programs separate with the M.S. student taking more specialized work in chemistry along with an experimental research problem, while the M.Ed. candidate will take broadening courses which will make him a more effective teacher. The industrial chemist will take more specialized work in chemistry and will be encouraged to take courses outside the sciences if they are relevant to his particular area of employment.

General Admission Requirements — Candidates for admission to the Master's program must have a Bachelor's degree from an accredited college or university and an undergraduate grade point average of 2.5 or better. Students should have completed one year each of general chemistry, analytical chemistry, organic chemistry, physical chemistry**, general physics, and calculus. Students wishing to specialize in biochemistry should also have had an undergraduate course in biochemistry. Students deficient in the above areas of study may also be admitted provided these deficiencies are made up concurrently with the student's graduate studies.

The general requirements for admission to candidacy for a Master's Degree are discussed on page 19 of this bulletin.

*An exception to this is afforded the student wishing to specialize in biochemistry.

**Only one semester of physical chemistry is required for education majors.

CURRICULUM FOR MASTER OF ARTS IN INDUSTRIAL CHEMISTRY

I. Industrial experience — Before the degree of M.A. in Industrial Chemistry can be granted the applicant must have had three years of full time employment in an approved area of the chemical industry. Only those years of employment acquired after obtaining the bachelor's degree may be counted.

   This industrial experience meets the university residency requirements.

II. Course requirements include 14 hours in the following: CH 610, 620, 630, 640 and 600.*

   *The M.A. candidate is not required to attend all of the day time seminars but is required to present two seminars and is expected to attend the evening seminars.

III. Course electives (10 to 16 s.h.) — Any graduate level courses selected from the natural sciences and mathematics with the permission of the candidate's advisor. Special permission from the Chemistry Department's Graduate Committee will be required for courses outside the sciences.

IV. Research Requirements (0, 2, or 4 s.h.)

   A. Research not required — a total of 30 credits in suitable courses being acceptable.

   B. No-Committee Thesis (2 s.h.) — Refer to the Graduate School Catalog for the steps in satisfying the research

requirement by submitting a "Two Hour, No-Committee Thesis".

C. Committee Thesis (4 s.h.) – If the candidate is doing research at his place of employment and if he has the permission of his supervisors he may present his research as a proposal and if accepted he may write up his research when it is complete and submit it as a thesis. It is expected that his supervisor will serve as an ex officio member of the proposal and thesis committees.

CURRICULUM FOR MASTER OF EDUCATION DEGREE IN CHEMISTRY

Students working for this degree with a major in Chemistry will complete a minimum of 30 semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration Area – 21-24 semester hours of work as follows:
   A. Required courses: CH 610, 620, 630 and 640.
   B. Elective Chemistry Courses – 9-12 semester hours of work elected from the following courses: CH 505, 522, 546, 576, SC 572 or CH 602.

II. Foundations of Education – 2 semester hours of work selected from the following courses: FE 511, 512, 513, 514 or 515.

III. Research Requirements – 5-7 semester hours in GR 550, 515 and CH 533. A thesis is required of each student. Thesis work done under the direction of an advisor earns 2 s.h. A thesis done under the direction of a committee earns 4 s.h. The student should enroll in GD 550 for the semester the thesis is expected to be completed.

IV. Non-Chemistry Electives – 0-6 semesters. The student may complete the 30 semester hour requirement by choosing from among any of the non-chemistry offerings of the Graduate School with the advice and approval of his graudate advisor. The student must satisfy any stated prerequisites for the elective courses.

CURRICULUM FOR MASTER OF SCIENCE DEGREE IN CHEMISTRY

I. Residence Requirements – The student shall be in residence a minimum of two consecutive semesters of full-time work. Students working as graduate assistants and/or making up deficiencies can expect to be in residence for at least two years.

II. Course Requirements – for those specializing in analytical, inorganic, organic, or physical chemistry.
   A. Required Courses (15 semester hours), including CH 610, 620, 630 and 640. One additional course designated by 600 chemistry numbers selected from one of the four core areas for 3 hours.
   B. Electives (6 semester hours)

      The electives may be selected from the areas of chemistry, physics, biology, and mathematics by the

student with the advice and approval of his advisor.

CH 500, Special Studies, can provide a maximum of three (3) semester hours toward the 30 semester hours necessary for the degree.

III. Course Requirement — for those specializing in biochemistry.
   A. Required Courses (12 semester hours), including CH 630, 623, 546 and BI 526.
   B. Electives (at least 9 semester hours), including at least one of the following: BI 556, 562, 563, 581 or 588 and any graduate courses in the Natural Sciences of Mathematics mutually agreed upon by the student and advisor.

IV. Research and Thesis Requirements: GD 550 for four hours.
   A. The research work must lead to an acceptable thesis, approved by the student's advisor and supervisory committee, and defended in a final oral examination.
   B. Seminar — 2 semester hours required in CH 600.
   C. CH 690 for at least three hours.

COURSE DESCRIPTIONS

CH 500 SPECIAL STUDIES variable s.h.
Intensive survey of literature in a particular area as well as individual instruction on recent advances in chemical instrumentation, methods of research, and specialized subject areas. To be arranged with instructor.

CH 505 NEW APPROACHES TO TEACHING HIGH SCHOOL CHEMISTRY 3 s.h.
Chem Study and C.B.A. approaches will be investigated. Individualization of chemistry and application of various teaching materials and techniques used in individualizing chemistry. Environmental chemistry and other relevant topics to better understand the chemical basis of our current environmental problems.

CH 533 CHEMICAL LITERATURE 3 s.h.
Periodicals, encyclopedias, handbooks, abstracting journals and other books dealing with various divisions of chemistry will be studied. Students are required to conduct a literature search on a selected topic. Lecture — 3 hours.

CH 576 RADIOCHEMISTRY 3 s.h.
Basic aspects of nuclear structure, phenomena of radioactive isotopes and chemical effects of such isotopes. Concurrent lab work utilizing instruments for detection and measurement of radioactive nuclides used in chemical experimentation. Lecture-Laboratory — 3 hours.

CH 600 SEMINAR 1 s.h.
A study of modern chemical research and research techniques. Scientific communications, including the role of the science library in research. Lecture — 1 hour.

CH 602 CHEMISTRY IN MANUFACTURING PROCESSES 3 s.h.
A course on the applications of chemistry to manufacturing processes. Lecture and field trips. Lecture — 3 hours.

GD 550 RESEARCH AND THESIS 2 or 4 s.h.
Lab and literature work on the student's thesis problem done under the direction of a faculty member. Should be scheduled for the semester the student expects to finish writing the thesis.

CH 690 RESEARCH variable s.h.
Lab and literature work on the student's thesis problem done under the direction of a faculty member. Should be started as soon as is practical.

SC 572 EXPERIMENTAL TECHNIQUES IN CHEMISTRY AND PHYSICS 3 s.h.
Emphasis on scholarly experience in experimentation, observation and application of scientific concepts. Classroom and lecture demonstrations will be prepared, presented, and evaluated by students and instructor.

Special attention to development of new ideas and new ways of presenting scientific principles. Prerequisites: Chemistry I, II, Physics I, II.

INORGANIC

CH 610 INORGANIC CHEMISTRY (core course) 3 s.h.
Theoretical inorganic chemistry and, in particular, structure, periodicity, coordination chemistry, bonding and chemistry of non-aqueous solvents. Lecture – 3 hours.

CH 611 Coordination Chemistry 3 s.h.
Chemistry of transition metals, their compounds and complex ions. Lecture – 3 hours.

CH 614 INORGANIC PREPARATIONS 3 s.h.
Preparation of inorganic coumpounds expressing different techniques of synthesis. Designed for those students who have chosen to do inorganic research but have never had a prep course. One lecture per week and six hours of lab.

CH 615 CURRENT TOPICS IN INORGANIC CHEMISTRY 3 s.h.
Representative elements, chemistry of rare earth elements, inorganic spectroscopy, group theory or any other special areas of chemical interest.

ANALYTICAL

CH 522 ADVANCED INSTRUMENTAL METHODS OF ANALYSIS 3 s.h.
A survey of modern instrumental analysis including electrical, spectrophotometric, x-ray, gas chromatography, and other methods. (Open to M.S. candidates by permission only.)

CH 620 ANALYTICAL CHEMISTRY (core course) 3 s.h.
Theoretical principles of analytical chemistry. Lecture – 3 hours.

CH 621 ELECTROANALYTICAL CHEMISTRY 3 s.h.
Theoretical and practical considerations of polarography, potentiometric, amperometric, coulometric, and conductometric methods of chemical analysis. Lecture – 2 hours. One 4-hour lab per week.

CH 622 SPECTROCHEMICAL METHODS OF ANALYSIS 3 s.h.
Application of the emission and absorption of light in ultraviolet, visible and infrared regions to problems involving inorganic and organic molecular structure, analysis, equilibrium and reaction rates. Lecture – 2 hours. One 4-hour lab per week.

CH 623 PHYSICAL AND CHEMICAL METHODS OF SEPARATION 3 s.h.
Application of chromatographic methods to the quantitative separation and analysis of chemical systems. Topics will include gas, column, paper, and ion exchange chromatographic methods and other methods of separation as time permits. Lecture – 2 hours. One 4-hour lab per week.

ORGANIC

CH 630 ORGANIC CHEMISTRY (core course) 3 s.h.
Principles of physical chemistry will be applied to the study of organic reaction mechanisms. Lecture – 3 hours.

CH 631 POLYMER CHEMISTRY 3 s.h.
A study of the chemistry of macromolecules, both natural polymers and synthetic polymers, including mechanisms of polymerization. Lecture 3 hours.

CH 632 STEROCHEMISTRY 3 s.h.
The effect of spatial arrangement of atoms on the chemical and physical properties of molecules. Lecture – 3 hours.

CH 635 CURRENT TOPICS IN ORGANIC CHEMISTRY 3 s.h.
With selections to meet the needs and interests of the students, possible topics may include: reaction mechanisms, molecular spectroscopy, stereochemistry, natural products, heterocyclics, polymer chemistry and organic synthesis.

PHYSICAL CHEMISTRY

CH 640 PHYSICAL CHEMISTRY (core course) 3 s.h.
A basic introduction to topics covered in advanced graduate courses. Lecture — 3 hours.

CH 641 STATISTICAL THERMODYNAMICS 3 s.h.
The application of statistical mechanics to chemical systems. Lecture — 3 hours.

CH 642 CHEMICAL KINETICS 3 s.h.
An introduction to empirical and theoretical chemical kinetics. Lecture — 3 hours.

CH 643 QUANTUM CHEMISTRY 3 s.h.
An introduction to quantum theory and its application to atomic and molecular structure, and spectroscopy. Lecture — 3 hours.

CH 645 CURRENT TOPICS IN PHYSICAL CHEMISTRY 3 s.h.
With selections to meet the needs and interests of the student, possible topics may include: quantum mechanics, molecular structure, chemical thermodynamics, statistical mechanics and chemical kinetics.

BIOCHEMISTRY

CH 546 BIOCHEMISTRY 3 s.h./sem.
Courses covering and emphasizing most recent developments in the areas of biochemistry such as amino acids, carbohydrates, lipids, nucleic acids, proteins, enzymes, metabolism and metabolic control. Lecture — 3 hours.

CH 651 BIOCHEMISTRY TOPICS 3 s.h.
A discussion of areas such as carbohydrates, lipids, amino acids, proteins, nucleic acids, kinetics, and metabolism. Lecture — 3 hours.

CH 652 ENZYMES 3 s.h.
A study of enzymes to include isolation, kinetics, classification, specificity, mechanisms, cofactors, structure and formation. Lecture — 3 hours.

COUNSELOR EDUCATION

GEORGE L. SPINELLI, CHAIRMAN; PESCI, SAYLOR, WASHBURN, WILSON, WORZBYT

Department offerings include Master of Arts and Master of Education degree programs and Commonwealth approved programs leading to certification as elementary school counselors, secondary school counselors, and supervisors of guidance services.

DEGREE PROGRAMS

The Master of Arts degree programs (Counseling Services; Student Personnel Services in Higher Education) are designed for students seeking preparation leading to counseling and counseling-related employment in non-school settings and higher education. The Master of Education degree program is the appropriate base for students seeking preparation leading to certification as elementary or secondary school counselors.

Program selection is determined by the interests, qualifications, and goal purposes of the applicant, and all degree programs require the completion of 30 credit hours of coursework which includes the thesis.

CERTIFICATION PROGRAMS

Elementary and Secondary School Counselors — To qualify for institutional endorsement and Commonwealth certification in these programs, the student must complete a 38 credit-hour, competency-based program to include field experience and all requirements for the Master of Education degree.

While teaching experience is not an absolute requisite for

admission, students should have an understanding of educational philosophy, objectives, and practices. They should also understand the basic principles of psychology, sociology, and related fields, and possess sufficient background in mathematics to comprehend the statistical materials and methods with which the counselor must be familiar. Prospective students should include introductory courses in these areas in their undergraduate preparation.

Supervisor of Guidance Services – This is a sixth year, competency-based, management oriented program designed for the preparation and certification of guidance services supervisors in grades K–12. The applicant must be a certificated school counselor with the master's degree and have at least one year of full-time experience as a school counselor.

STUDENT ADVISORY

Students should not attempt to plan their own programs. A departmental advisor, assigned to each student, assists with the preparation of course schedules, assignment of the thesis advisor, and all other concerns in a manner consistent with Graduate School and Department policy.

CONTENT AREAS

All students enrolled in Master's level programs will complete a core of courses to include the 2-4 semester hour research requirement. As defined in Graduate School policy, the 2 s.h. thesis is supervised by at least one faculty advisor, while the 4 s.h. thesis is supervised by a faculty committee.

Courses comprising the basic core will consist of GD 515, GD 516, GD 550, CE 531, and CE 533 for a total of 12-14 semester hours. See course descriptions under appropriate department programs.

Master of Arts in Counseling Services program majors will complete the core, plus CE 537 and CE 541, and 10-12 semester hours in electives.

Majors in the Master of Arts in Student Personnel Services in Higher Education program will complete a modified core to include GD 515, GD 516, GD 550, CE 537, CE 541, SPS 526, SPS 527, SPS 528, SPS 529, and 7-9 semester hours in electives.

Students seeking certification as elementary school counselors will complete the core and CE 525, CE 526, CE 527, CE 529, CE 538, CE 540, CE 555 plus one course in Foundations of Education and six semester hours in electives.

Students seeking certification as secondary school counselors will complete the core and CE 535, CE 536, CE 537, CE 538, CE 539, CE 541, CE 555 plus one course in Foundations of Education and six semester hours in electives.

Supervisor of guidance services program majors will complete courses BU 541, CS 502, CE 542, CE 543, CE 544, CE 545, CE 546, CE 550, and CE 551.

Courses outside the student's major may serve as suitable electives, but only with the approval of the advisor and the course instructor. CE 556 (Independent Study) may be scheduled with the approval of the faculty advisor and the Department Chairman. For additional information about individual programs contact the department chairman.

COURSE DESCRIPTIONS

CE 531 PHILOSOPHY AND PRINCIPLES OF GUIDANCE 3 s.h.
Overview of genesis and development of guidance in American education, including philosophical concepts, psychological theories, cultural and social influences, and current practices.

CE 533 EVALUATION TECHNIQUES 3 s.h.
Basic concepts utilized in testing, emphasizing data concerning purposes and types of tests, test administration, test scoring, test validity, and test selection. Prerequisites: CE 531, GD 516.

CE 525 CASE STUDY TECHNIQUE (Elem) 3 s.h.

CE 535 CASE STUDY TECHNIQUE 3 s.h.
Principles, problems, methods, and content involved in understanding the individual student and his developing self-concept. Prerequisites: CE 531, 533.

CE 526 INFORMATION SERVICE (Elem) 3 s.h.

CE 536 INFORMATION SERVICE 3 s.h.
Emphasis is placed upon the relationship between the information service and other guidance services; theories related to decision making; use of information in process of educational, social, and vocational development; collection, evaluation, filing, and uses of information; and programming of information activities. Prerequisite: CE 531.

CE 527 CONSULTATIVE AND COUNSELING THEORY (Elem) 3 s.h.

CE 537 COUNSELING AND CONSULTATIVE THEORY 3 s.h.
Theories, objectives, principles, and practices of counseling and consulting with individuals are covered. Interview techniques are presented for maximum development in subsequent practicum experience. Prerequisite: CE 533.

CE 538 MANAGEMENT OF THE GUIDANCE SERVICES 3 s.h.
Emphasis is placed upon planning, organizing, coordinating, directing, and controlling functions of management as applied to guidance services within framework of the school's philosophy and statement of objectives. Prerequisites: CE 531, 533, 535, 536, 537, 539.

CE 529 GROUP PROCEDURES (Elem) 3 s.h.

CE 539 GROUP PROCEDURES 3 s.h.
Emphasis will be placed upon nature of groups, techniques involved in development of dynamics of group behavior, formation and operation of groups, organization and structure of groups, and influence of group upon the individual as they relate to common problems. Prerequisite: CE 531.

CE 540 SUPERVISED PRACTICUM (Elem) 3 s.h.

CE 541 SUPERVISED PRACTICUM 3 s.h.
Practicum experience in counseling techniques, including interviews, observations, written reports, and group interaction. Students work with counselees appropriate to their level of preparation and goals. Emphasis is both developmental and problem-centered. Since aspects of all component guidance services are included, this is a terminal course in the core sequence.

CE 542 SCHOOL SERVICES 3 s.h.
Designed to analyze critically written statements of educational philosophies and objectives of selected elementary and secondary schools, students will prepare a written statement of educational philosophy and objectives for a school in which he is or has been employed as a guide for the critical examination of philosophies and objectives for school services — instructional, administration and supervisory, and pupil personnel.

CE 543 PLANNING PRINCIPLES 3 s.h.
Students will develop written statements of guidance services philosophy and objectives in order to establish program elements for each of the guidance services which will be analyzed to determine personnel needs, facilities, and materials necessary, in-service program requirements, and budgetary demands. Prerequisites: BU 541, CE 542.

CE 544 ORGANIZING PRINCIPLES 3 s.h.
Techniques to relate tasks to personnel will be examined to develop structural patterns necessary to initiate guidance services programs in districts of various sizes and compositions. Prerequisite: CE 543.

CE 545 HUMAN RELATIONS AND COMMUNICATIONS 3 s.h.
Students will develop skill in programming various guidance services for the school year throughout the district. Human relations principles and techniques to elicit cooperation from personnel involved and skills in communicating with personnel participating in the program of guidance services and with the public will be developed.

CE 546 ENCOUNTER & SENSITITIVY IN COUNSELING 2 s.h.
Participants will explore their own individuality and human potential as they enter into authentic, honest and trusting relationships within the context of a small group experience encouraging recognition and expression of feelings as an effective way of understanding one's self and impact on others. Enrollment is with consent of instructor.

CE 550 SUPERVISION OF GUIDANCE WORKERS 3 s.h.
A practicum designed to provide allied experience in supervision of school counselors, elementary and secondary, in preparation of supervisors of guidance services. Primary focus is on supervision of counseling service content and process, but components of all guidance services are included. Enrollment is with consent of instructor.

CE 551 EVALUATION OF GUIDANCE SERVICES 3 s.h.
Students will acquire skills to evaluate program of guidance services as it is related to the educational objectives and guidance services objectives of the school including initiation of appropriate research and preparation and reporting of recommendations based upon findings. Prerequisite: CE 544.

ST 526* HISTORY AND ADMINISTRATION OF HIGHER EDUCATION IN THE UNITED STATES 3 s.h.
Growth and trends of higher education in the United States with emphasis on twentieth century: Administrative problems and educational issues, characteristics of higher education in economic analysis and cost, financing, level of investment and assessing returns, some administrative problems as related to legal aspects of higher education as it affects University staff, public and students with some court cases reviewed and compared.

ST 527 STUDENT PERSONNEL SERVICES IN HIGHER EDUCATION 3 s.h.
An overview of student personnel work in higher education, highlighting its history, purposes, organization, philosophy, ethical values, current and past social and legal issues in institutions of higher learning, including various student services such as admissions and registration, data processing and scheduling, housing and food services, career counseling and placement, college unions and student activities, sources of financial aid, fraternities and sororities, intramural athletics and other programs.

ST 528 INTERNSHIP IN STUDENT PERSONNEL SERVICES 3 s.h.
Practical experience in the following areas of student personnel service: Dean of Students, Dean of Men, Dean of Women, Housing Office, Admissions, Registration, Placement, Financial Aid, Student Union, and related areas. Participants will include representatives from the cooperating staff.

ST 529 SEMINAR IN STUDENT PERSONNEL ADMINISTRATION 3 s.h.
Review in depth the problems and trends in various areas of student personnel service. Research projects are required.

ST 530 SEMINAR ON CURRENT TRENDS IN STUDENT AFFAIRS 3 s.h.
Current trends in Student Affairs administration including new legal aspects, human sexuality, drug scene, minority programs, new trends in counseling services, changes in residence hall living, changing patterns of student financial aid, etc. Each student enrolled in the course will study in depth two areas and complete a research type project in one.

CRIMINOLOGY

STUART KATZMAN, CHAIRMAN AND DIRECTOR OF GRADUATE STUDIES; BOGAN, BROWN, COHEN, McGUIRE, McNABB, SHANNON, WEGENER.

The Criminology Department offers a Master of Arts degree with concentrations in Corrections, Criminal Justice and Law Enforcement. The areas of concentration are so designed that graduates will be prepared to either immediately assume responsibilities in appropriate professional settings or proceed to doctoral level study. Students interested specifically in community college teaching should enroll in the Master of Arts in Social Science program with a major in criminology and a minor in another social science discipline. The department also offers courses open to students following other degree programs in the graduate school. Law Enforcement Educational Program funds may be available dependent upon candidate's qualifications.

MASTER OF ARTS IN CRIMINOLOGY

Admission Requirements — In addition to meeting the requirements for admission to the Graduate School, a student intending to work toward a Master of Arts in Criminology with a specialization in Corrections, Criminal Justice* or Law Enforcement will be required to have the following prerequisite professional preparation:

A. Criminology majors should have a good understanding of the criminal justice system. Further, each student should have an understanding of the basic principles of psychology, sociology, and/or cultural anthropology.

B. Applicants should have at least two years of practical experience within the system of criminal justice.**

*Criminal Justice Program requirements will be satisfied upon the completion of 12 hours in approved graduate-level criminology courses and 12 approved hours in another discipline. This must be coupled with an approved methods course and an acceptable thesis (30 hour total).

**In cases of deficiency in background or experience the student may, with the permission of the department chairman, eliminate the deficiency by the acquisition of additional graduate hours in criminology or related fields — a minimum of 12 semester hours.

Each student admitted to the Graduate Program will be assigned a faculty advisor who will help plan his program of study. This will enable the student to develop a personal course of study which best meets his future needs. The M.A. in Criminology will be awarded at the successful completion of at least 30 semester hours of work (to include core courses and a thesis).

CURRICULUM FOR THE MASTER OF ARTS IN CRIMINOLOGY DEGREE

Students working for this degree will complete 30 semester hours of work from the following required and elective courses.

A. Core Courses — 10-12 s.h., including CR 501, CR 502 or SS 514 or GD 515, CR 598 and GD 550.

8. Elective Courses – (18 s.h.: 9 hrs. must be in criminology and directly related to the candidate's area of concentration and 9 may be taken in related and approved graduate-level courses.) Following is a list of approved graduate electives (students must meet individual department requirements for admission): GD 516, 530; PS 554, 558, 559; PC 533, 534, 536, 540, 545, 546, 558; SO 562, 563, 564, 565, 590 or AN 593.

MASTER OF ARTS IN SOCIAL SCIENCE

(See Social Science, page 121, for more complete description)

I. Major in Criminology – 30 hours, including CR 501, CR 502, CR 510, CR 598, GD 550, 9 hours in elective criminology courses and 9 hours in minor field electives selected in consultation with advisor.

II. Minor in Criminology – CR 510, Seminar in Community College Teaching – 2 s.h.; Electives in Criminology – 9 s.h.

COURSE DESCRIPTIONS

CR 501 CRIMINOLOGICAL THEORY 3 s.h.
An intensive review of selected criminological theories; with emphasis on in-depth understanding of relevant theoretical approaches to crime and criminally deviant behavior.

CR 502 INTRODUCTION TO CRIMINOLOGICAL RESEARCH/SS 514 or GD 515 2 s.h.
Analysis of research methodology apropos to study of crime and deviant behavior. Course structure will emphasize research design and development, methods of scientific field inquiry, objective evidence, utilization of library resource materials, and techniques of research presentation. Prerequisite – CR 501.

CR 503 SEMINAR ON POLICE ADMINISTRATION 3 s.h.
Innovative techniques of police organization and personnel management discussed. Review of practical difficulties involved in adapting cybernation, scientific technology, and advanced personnel administration to existing police establishment. Prerequisite: CR 501 and major status.

CR 504 PERSONNEL RECRUITMENT AND SELECTION IN LAW ENFORCEMENT 3 s.h.
Techniques of man-power recruitment and personnel selection coupled with in-depth review of police applicant testing procedures. Qualification stipulation, oral and written examination construction, and elements of background investigations explored. Prerequisite: CR 501 and major status.

CR 505 SPECIAL TOPICS: LAW ENFORCEMENT 3 s.h.
At option of instructor, course will provide in-depth review of significant police problems, e.g., interdepartmental friction, etc.; may also be utilized to explore specific social problems and/or deviant behavior which has influence on administration of police services. Prerequisite: CR 501. Can be taken more than once depending on topic.

TOPICS TO BE CONSIDERED:

Seminar on Crime in American Society

A thorough familiarization with nature and extent of crime problem in United States with particular attention to statistics of criminality; traditional white collar and organized crime; and current societal response to contemporary trends.

Seminar on the Role of Law Enforcement in a Free Soceity

Detailed review of government's police powers coupled with critical analysis of structure and function of major investigative and law enforcement agencies at federal, state, and local level. Resource utilization, inter-departmental cooperation, and break-down of police isolation stressed with a collateral emphasis on unity of purpose in professional law enforcement.

Seminar on Constitutional Law: Its Effects on the Administration of Criminal Justice

Comprehensive analysis of constitutional foundations of contemporary jurisprudence; major thrust of seminar being a detailed understanding of recent "landmark" Supreme Court decisions correlative with a practical knowledge concerning effects of judicial pronouncements on administration of criminal justice.

Advance Principles of Supervision

An action course designed to acquaint potential supervisor with theoretical and practical methods of problem solving within a bureaucratic structure; accent will be practical and problematic situations involving group solutions to supervisory problems through role-playing and psychodrama. The development of supportive interpersonal relations and stimulation of personal improvement through increased reasoning potential will be stressed.

Advanced Public Safety Administration

Explores major elements of public safety administration; emphasis on the feasibility of police and fire unit consolidation, safety unit coordination at major disasters, unity of command in the rendering of public safety services, and practicability of creating an office of Public Safety Director.

Theory: Arrest, Search and Seizure

Theory of arrest, search and seizure: its constitutional basis, its practical applicability, and its actual implementation. Relevant "landmark" Supreme Court Decisions will be studied — logic will be reviewed.

Command: Decision Making and the Police Executive

The accent will be on police executive development with the elements of executive decision making stressed. Role playing and psychodrama will be utilized to stimulate situations and conditions requiring executive level deliberations.

Organized Crime

Critical evaluation of organized crime in the United States; emphasis on nature, structure, and social function of La Cosa Nostra. Elements of police intelligence operation reviewed as an adjunct of the functional analysis of organized crime.

Organization: The Police Community Relations Unit

Investigation of the purpose, function, and organization of Police-Community Relations Unit of a police department. Emphasis is on effective public relations procedures, alternative organizational designs, and circumvention of both police and community opposition to formulation of the unit.

Seminar in the Control of Deviant Group Behavior

Clinical review of dynamics of intergroup relations, with emphasis on gang and/or mob behavior. Will explore latest sociological theories concerning group formation and control, and stress police actions in crisis situations.

CR 510 SEMINAR IN COMMUNITY COLLEGE TEACHING 2 s.h.

Designed to prepare community college instructors through an emphasis on the objectives, materials, techniques, and evaluation of general education programs in criminology. Prerequisites: Criminology major or minor. (Summer only.)

CR 511 PREDICTIVE METHODS OF PROBATION AND PAROLE 3 s.h.

Gives student actual practice in using behavioral prediction devices. Each student will have opportunity to develop experimental models and research the results. CR 501 – major status.

CR 512 LABORATORY IN BACKGROUND ANALYSIS AND PRE-SENTENCE REPORT WRITING 3 s.h.

Will provide background information concerning structure, function, and use of pre-sentence investigation. Gives practical training in compilation and analysis of social case histories. Each student, under direct supervision, will develop, organize and write several pre-sentence investigations. CR 501 – major status.

CR 513 SEMINAR ON CRIME AND DELINQUENCY PREVENTION 3 s.h.

Exploration of most effective ways of preventing crime and delinquency. Will stress remedial social action, law enforcement and correctional procedures and techniques of community arousal and involvement. Prerequisite: CR 501.

CR 514 DEVELOPMENT OF INSTITUTIONAL TREATMENT SERVICES 3 s.h.

In-depth study of institutional treatment methods; including a review of the most successful approaches to curbing recidivism problem. Will investigate therapeutic community and milieu management concepts as well as individual treatment procedures. CR 501 – major status.

CR 515 SPECIAL TOPICS/CORRECTIONS 3 s.h.

At option of instructor, course will provide in-depth review of significant correctional problems, e.g., interdepartmental friction, etc.; may also be utilized to explore specific social problems and/or deviant behavior which has an influence on administration of correctional services. Prerequisite: CR 501. May be taken more than once depending on topic.

TOPICS TO BE CONSIDERED:

A Seminar on Corrections

Intensive review and evaluation of the correctional system and its integral components – probation, institutionalization and parole.

Correctional Administration

A basic delineation of current trends in correctional administration; will emphasize effective techniques of organization and management in correctional services.

Crime and Its Social Treatment

Elaboration of crucial elements of deviant behavior and review of broad based community rehabilitation and treatment services; will analyze utilization of self-help groups, therapeutic communities, half-way houses, community rehabilitation centers, referral agencies, out patient psychiatric services, etc.

Seminar on Psychological Abnormality and the Correctional Process

Will examine relationship between psychological abnormality and commission of crimes and/or establishment of criminal careers. Emphasis on severe mental disturbances – psychopaths, sexual deviants and criminally insane.

Inter-Agency Cooperation and Resource Development

Accent on development of inter-agency cooperation and resource utilization; will emphasize major referral agencies – public and private – and familiarize students with techniques of resource utilization with relation to rehabilitation and treatment of the offender.

Interviewing Techniques: Correctional Emphasis

Students learn and, under expert supervision, practice advanced techniques of correctional interviewing. Techniques to

be stressed: establishment of rapport, utilization of empathy, elements of identification, and principles of catharsis and ventilation.

Group Methods in Corrections

Will emphasize para professional group therapy techniques which are adaptable to the correctional process. *This topic will be developed in conjunction with the Psychology Department.*

CR 516 ADVANCED SEMINAR ON PROBATION AND PAROLE 3 s.h.

Provides a thought provoking review of functional relationships between various branches of government and the correctional process, and a thorough analysis of probation and parole processes and their ancillary components. Stresses practical problems of client supervision, resource referral, and termination of supervision services. Prerequisite: CR 501

CR 530 INTERNSHIP IN CRIMINAL JUSTICE 3-6-12 s.h.

Each student placed with a selected criminal justice agency to participate actively in activities of the unit. Student may earn up to 12 semester hours credit. Students required to submit an acceptable paper explaining experiences in the internship program. By appointment only. Majors only.

CR 540 INDEPENDENT STUDY IN CRIMINOLOGY 1-3 s.h.

The student, with advice and approval of instructor, reaches a significant problem in Criminology. CR 501 — by appointment. Criminology major or minor.

GD 550 THESIS 2 or 4 s.h.

With advice and consent of faculty advisor, the student will — prior to graduation — participate in preparation of a thesis which is related to his subject matter concentration at the graduate level. Students required to strictly adhere to scientific method, and present findings in a suitable form.

CR 598 GRADUATE READINGS IN CRIMINOLOGY 3 s.h.

With faculty supervision, students will read at least six major criminological texts and participate in a seminar situation for the purpose of discussing the reading materials, CR 501.

ECONOMICS

DONALD A. WALKER, CHAIRMAN; CROSS, DAVIS, GARVIN, HOLT, HUFF, MARTEL, RICHARD, STONEBRAKER, WARE.

The Department of Economics does not currently offer a graduate degree. The graduate courses offered by the Department are a component of both the M.Ed. and M.A. in Social Science degrees.

COURSE DESCRIPTIONS

EC 501 FOUNDATIONS OF MODERN ECONOMICS 3 s.h.

Not open to students who have credits of C or better in undergraduate EC 121-122 sequence. Survey of micro and macroeconomics designed for student who is not already well-grounded in the field.

EC 520 HISTORY OF ECONOMIC THOUGHT 3 s.h.

Examination of social, political, intellectual, and economic origins of work of prominent past economists, and of the content and impact of their work. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics.

EC 525 MONETARY ECONOMICS 3 s.h.

Structure and function of monetary institutions including the Federal Reserve System, commercial banks, and financial intermediaries, theory of monetary economy, and monetary policy. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics.

EC 530 LABOR ECONOMICS 3 s.h.

History, structure, and operations of trade unions and employer organizations; major Federal labor legislation; collective bargaining theory; wage determination; current labor problems. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics.

EC 541 CONTEMPORARY ECONOMIC ISSUES 3 s.h.
Problem areas of domestic economy. Primary focus in each semester is determined by student-instructor interest. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics.

EC 545 INTERNATIONAL ECONOMICS 3 s.h.
Nature of world economy, international trade, international investment, current international institutions, and foreign economic policy of the United States. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics.

EC 550 COMPARATIVE ECONOMIC SYSTEMS 3 s.h.
Basic economic issues in capitalism, socialism, communism, and fascism, and their relationships to political and social problems. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics.

EC 580 SEMINAR 3 s.h.
Seminar in selected economic issues or problems. Prerequisite: EC 501 or credits of C or better in 6 s.h. of Principles of Economics.

EDUCATIONAL PSYCHOLOGY

BRUCE A. MEADOWCROFT, CHAIRMAN; ANGELONI, BAHN, CUTLER, DeFABO, HAYS, HELMRICH, LEVENTRY, QUIRK, SHANK, YANUZZI

Admission

Application for admission to the program is made to the Graduate School Office. After admission to the Graduate School, the Candidate must secure the Departmental Application Packet, which includes further information from the Chairman, Department of Educational Psychology. Potential Candidates will be interviewed by the Department Admissions Committee after we receive the departmental application, copies of transcripts from the Graduate School Office, and official Graduate Record Examination scores, including Education. An advisor will be assigned to approved Candidates and no course work may be scheduled without the advisor's approval. The advisor may approve alternate courses to meet required competencies.

Admission to the program will be based on evidence of previous scholarship and/or potential for academic success, personal and professional qualities deemed necessary for adequate functioning as a specialist in education and motivation for professional excellence. Continued enrollment once begun, is expected. Exceptions to this policy must be filed in writing and approved by the student's program committee.

Candidates for admission to Master's degree programs must have a Bachelor's Degree from an accredited institution. Candidates for admission to the Post-Master's certification program must have a Master's degree and an Instructional or Specialist certificate from an accredited institution or have approved educational experiences.

MASTER OF EDUCATION IN EDUCATIONAL PSYCHOLOGY

The Master of Education Degree in Educational Psychology Program (30 s.h.) has been designed to give the interested student a broad theoretical and practical background in the areas of education and psychology.

The Professional Specialization studies courses for the program (see course descriptions) for 21 s.h. are EP 504 or EP 578, EP 518, EP 576, EP 572 or EP 573, EP 580, EP 562, and EP 550-EP 581. The Foundations and Research studies courses for Master's Degree programs for 9 s.h. are FE 511-512-513, 514, 515 (2 s.h.), GD 515, GD 516, and GD 550 (2-4 s.h.)

Home School Visitor (School Social Worker) Program

The Home School Visitor (School Social Worker) Program (30 s.h.) is designed for individuals seeking the competencies required for Pennsylvania certification. The candidate must be knowledgeable in the field of education and psychology and comfortable within a school setting and must complete training and experiences reflecting a social work background. The program will accommodate for individual variations in background and experience and is for individuals who have a sincere commitment to the welfare of children and wish to acquire the necessary competencies.

The Professional Specialization studies courses for 21 s.h. are EP 504 or EP 578, EP 518, EP 576, EP 562, and EP 552-EP 581

(9 s.h.). The Foundations and Research studies requirement will be 9 s.h. Additional Internship hours may be required to satisfy competency requirements.

Certificate of Advanced Study in School Psychology Post-Master's Degree Program – 30 s.h.

A Certificate of Advanced Study in School Psychology may be issued to those students who have completed a minimum of 60 graduate hours, 30 of which should be approved graduate hours in the university beyond the master's degree, and who have met all of the requirements for certification as a school psychologist.

The School Psychology Program is designed for those individuals who are seeking certification as public school psychologists in the Commonwealth of Pennsylvania. The objectives of the program are to train competent individuals who will demonstrate (1) an ability to evaluate and prescribe, (2) an understanding of individual and group dynamics, (3) an understanding of the educational system and learning processes, and (4) an ability to apply all acquired competencies. Certification as a school psychologist is recommended when all of the indicated role competencies are demonstrated by the candidate.

The Professional Specialization studies courses for the program for 21-24 s.h. are EP 512, EP 513, EP 563 and EP 550-EP 551 (12-15 s.h.). The other approved courses for 9 s.h. to meet competency requirements are SE 531, SE 566 or EP 581, and PC 534. For final certification other courses and/or additional Internship hours may be required by the School Psychology Committee to satisfy competency requirements.

COURSE DESCRIPTIONS

EP 504 ADVANCED EDUCATIONAL PSYCHOLOGY 3 s.h.
An upward extension of Educational Psychology with a systematic review of current research and learning theory with emphasis on classroom application.

EP 512 INDIVIDUAL EVALUATION I 3 s.h.
Individual testing and professional competency in Binet and related scales of intelligence and includes techniques of report writing, professional role studies, and communication procedures. Prerequisite: For approved School Psychologist candidates.

EP 513 INDIVIDUAL EVALUATION II 3 s.h.
Individual testing and professional competency in the Wechsler Scales and other pertinent tests. Prerequisite: EP 512 – For approved School Psychologist candidates.

EP 518 INTERPRETATION OF EDUCATIONAL AND PSYCHOLOGICAL TESTS 3 s.h.
Designed to provide the individual with information necessary to understand, evaluate, and interpret results of educational and psychological tests accurately and meaningfully.

EP 550 INTERNSHIP I 3 s.h.
Supervised experiences in Educational Psychology. Prerequisite: For approved candidates.

EP 551 INTERNSHIP II 3-12 s.h.
Clinical and field experience with mentally and physically handicapped and emotionally disturbed children. Prerequisite: For approved School Psychologist candidates.

EP 552 INTERNSHIP – HOME AND SCHOOL VISITOR (SCHOOL SOCIAL WORKER) 3-9 s.h.
Supervised experiences for Home and School Visitor (School Social Worker) candidates. Prerequisite: For approved candidates.

EP 562 PSYCHOTHERAPY AND GROUP DYNAMICS 3 s.h.
A systematic study of major techniques of counseling and psychotherapy, and application of principles of group dynamics to educational settings.

EP 563 PROJECTIVE TECHNIQUES 3 s.h.
An introduction to various projective techniques currently used. Prerequisite: For approved School Psychologist candidates.

EP 572 PSYCHOLOGY OF CHILDHOOD EDUCATION 3 s.h.
Studies relationship which physical, social, emotional, and intellectual development have on theory and practice of childhood and pre-adolescent education.

EP 573 PSYCHOLOGY OF ADOLESCENT EDUCATION 3 s.h.
Concerned with study of significant characteristics of adolescence, and understanding the role of cultural influences on formation of behavior.

EP 576 BEHAVIOR PROBLEMS 3 s.h.
Explores behavior problems encountered in classroom situations and gives causes, characteristics and some remedial techniques.

EP 578 LEARNING 3 s.h.
Explores learning theories and educational application in working with learning problems in the classroom.

EP 580 PUPIL ADJUSTMENT 3 s.h.
Considers human adjustment and mental health in relation to causative factors and explores dynamics of personal and interpersonal relationships.

EP 581 SPECIAL TOPICS IN EDUCATIONAL PSYCHOLOGY 3 s.h.
Designed for those students who wish to do independent research in special areas. Prerequisite: department chairman permission.

ELEMENTARY EDUCATION

ROBERT L. KING, CHAIRMAN; ALVIN J. STUART, DIRECTOR OF GRADUATE STUDIES; BAKER, BARTHA, A. L. DAVIS, B. DAVIS, DeCICCO, DORSEY, ELLIOTT, GLOTT, KAZAMEK, KUHNS, LOTT, McFEELY, MILLWARD, MOTT, REILLY, RIZZO, WILLIAMS

The Elementary Education Master's curriculum is designed to assist the graduate student to broaden or strengthen his background in academic areas and in professional education. The graduate student may elect one of several specialized fields for study, including curricula in general education, early childhood education, and reading. If courses are carefully selected in the general elementary education curriculum, a concentration in areas such as language arts, social studies, mathematics or science can be achieved. A graduate student may exercise much freedom in designing his program.

At the Master of Education level, the student is assigned to an advisor as soon as he is admitted to the Graduate School. At this time, the student and advisor outline a tentative graduate program. (Note that GD 515, Elements of Research, should be taken during the first ten hours of graduate work.)

Acceptance into the Graduate School permits a student to take course work in a department. If a student wishes to become a degree candidate, he must complete the Application to Candidacy form and forward this form to the Graduate School after having successfully completed six hours of course work in the department.

MASTER OF EDUCATION DEGREE IN ELEMENTARY EDUCATION

Students working toward a Master's degree in Elementary Education should complete 30 hours of work in accordance with the following divisions:

I. Professional Studies – select between 15 and 18 semester hours. Course work may be selected from a number of courses including the following: ED 500, ED 501, EL 531-532, EL 541-548, EL 550-558, EL 577, EL 578 or EL 579.

II. General Studies – Courses in this area should be selected after consulting with your advisor in elementary education. Courses in professonal studies should not be selected in this area. Three to six semester hours are required.

III. Foundations of Education – 2 semester hours of work to be selected from the following courses: FE 511-515. Course descriptions on page 70.

IV. Educational Research – 6 semester hours required: GD 515, 550 and EL 580. Students who select to do a two semester hour thesis will be required to take EL 580 following GD 515.

V. Credit for Workshops – The Elementary Education Department will accept a maximum of 6 hours of workshop credit for the purpose of meeting degree requirements, where appropriate, in any graduate program. Such credit hours should be considered as meeting the General Studies requirements, unless the workshop experience carries an EL prefix, in which case the credit might be considered as meeting part of the Professional Studies requirements.

GRADUATE PROGRAM IN EARLY CHILDHOOD EDUCATION

Students seeking Instructional Level II Certification with a specialization in Early Childhood Education or a Master of Education Degree in Elementary Education specializing in Early Childhood Education must complete the following requirements: A minimum of 24 semester hours is required for the Instructional Level II Certificate and 30 hours minimum for the Master's Degree Program. All courses scheduled should have the approval of the student's advisor.

In the event that a committee finds the student to be proficient in a required course or courses in the Professional Studies unit, the student will be permitted to elect another course or courses in the Professional Studies unit. Some students may have to schedule additional semester hours to reach the required level of competency.

Students pursuing a Master's degree may elect a two- or a four-hour thesis. Those students electing the former choice, must also schedule EL 580, Seminar in Advanced Research.

Procedures for Admission

An applicant must first be admitted to the Graduate School as a qualified student. He then secures the Early Childhood Program

application packet from the Coordinator of the Early Childhood Program, completes the forms and returns them to the Coordinator's office for review. Applicants may be requested to report for an interview with the faculty responsible for teaching the early childhood courses and will be notified of admission to the program. Upon admission to the program, the student will be assigned to a faculty member who is responsible for teaching in the program.

I. Professional Studies — Early Childhood Education and related courses. A total of 15-18 hours. Required courses include EL 555, 560, 561, 562, and 550. Remaining hours must be scheduled in EL 548, 553, 579 or LR 540.

II. General Studies — Between three and six hours must be scheduled in the following: EP 578 (required), AR 510, HE 540, HE 521, PS 554, SO 563, AN 591, HP 521, HP 530, SE 531, PC 534, PC 540, SE 538 or SE 539.

III. Foundations of Education — two hours must be selected from FE 511-515.

IV. Educational Research — Six hours must be selected from GD 515, GD 550 and EL 580.

Students who elect to do a two-semester hour thesis will be required to take EL 580 following GD 515.

INTERNSHIP IN ELEMENTARY EDUCATION

For a limited number of Elementary Education graduates Indiana University of Pennsylvania offers an Internship Program leading to the Master of Education degree. Eligible participants must have completed a Bachelor's degree in Elementary Education and have a valid elementary teaching certificate. This fifth-year program is designed to permit well-qualified graduate students to gain teaching experience in a selected school system while completing the Master of Education requirements.

Other types of internship experiences can be arranged for teachers-in-service who may become participants in University sponsored projects or other certification programs.

In all cases the professional work experiences of the intern will be subject to review and evaluation by a supervisor from the University and designated public school personnel.

Information regarding internship experiences may be obtained from: Director of Graduate Studies, Department of Elementary Education, Indiana University of Pennsylvania, Indiana, Pennsylvania 15701.

THE DOCTORATE IN ELEMENTARY EDUCATION

The program leading to the Doctor of Education degree in Elementary Education is designed for those who wish to teach at the college or university level or who desire to work in a teaching, supervisory, or administrative capacity.

A candidate for this degree is expected to acquire a broad knowledge of various aspects of education, and to demonstrate through the completion of an acceptable dissertation the ability to conduct an independent investigation of a topic approved by the department.

The first step in a student's program is to seek admission to course work beyond the Master's degree. After the student has completed 8 hours and prior to 16 hours of advanced work at

Indiana, he can apply for candidacy. To become a candidate a student must meet the requirements of the Graduate School and the Department of Elementary Education. Applicants may be reviewed on the basis of acceptable scores on the Graduate Record Examination, performance in course work, professional recommendations, and successfully passing a written and an oral examination administered by the department.

After admission to candidacy the student will be assigned to a dissertation committee. This committee will assist the student in preparing a final plan of study. The comprehensive examination will be scheduled upon the recommendation of the dissertation committee near the end of course requirements and prior to registering for GD 650 – dissertation credits. This examination will be both written and oral and will include a major and a second concentration field.

No specific number of course credits entitles a student to the degree, but a minimum of 60 hours of course credit, exclusive of research credits, must be earned beyond the Bachelor's degree.

Statistics and computer science are required to complete the research area of study. However, foreign language may be substituted as an option.

A supervised internship and a period of residency will be required of all candidates for this degree. Ordinarily the internship will consist of working for a semester or a summer in an educational experience unlike one already experienced by the candidate.

A complete description of the Doctor of Education program in Elementary Education can be obtained from the Department of Elementary Education, Davis Hall.

COURSE DESCRIPTIONS

EL 531 CURRICULUM PROBLEMS IN ELEMENTARY EDUCATION 3 s.h.
Students will develop and evaluate aims and objectives of elementary education, write a school philosophy, examine contemporary forms of curricular organization and determine place of each broad subject area in total school program.

EL 532 SYSTEMATIC OBSERVATION OF CLASSROOM BEHAVIOR 3 s.h.
Students will learn how to code classroom verbal interaction through actual demonstration, video tapes, and audio recordings, with emphasis on various teaching strategies, monitoring verbal interaction, and supervisory sessions. Designed for elementary majors, provisions can be made to enroll students from other departments.

EL 541 SPECIAL PROBLEMS IN ELEMENTARY SOCIAL STUDIES 3 s.h.
Specific problems with curriculum, teaching, and learning experiences and evaluation are stressed. Each student will research a special problem or area of interest.

EL 542 MATHEMATICS IN THE ELEMENTARY SCHOOL 3 s.h.
Experiences with manipulative materials, games and puzzles, activity centers, and lab approach to mathematics. Inexpensive mathematics lab equipment will be constructed. Sources of literature and materials will be presented and used. Opportunities will be given to write activity and problem cards and to plan mathematics activity centers. Psychological foundations and mathematics structure will be used as referents for suggested activities and curriculum studies.

EL 543 RESOURCE MATERIALS IN ELEMENTARY SCIENCE 3 s.h.
An introduction of underlying philosophy and use of materials of

several of the current national curriculum programs in elementary science. Emphasis is placed on following programs: (1) Science: A Process Approach (SAPA), (2) Elementary Science Study (ESS), (3) Science Curriculum Improvement Study (SCIS), and (4) Conceptually Oriented Program in Elementary Science (COPES), including micro-teaching techniques and development and preparation of individualized self-instruction modules. Students are required to work with various program materials.

EL 544 RECENT TRENDS IN ELEMENTARY LANGUAGE ARTS 3 s.h.

Designed to help students to direct more effective communication through study of problems, recent trends and contributions of research in the broad fields of listening, oral and written communication.

EL 545 EXPERIMENTAL STUDIES IN ART EDUCATION 3 s.h.

Teachers will undertake art experiences in various media as they are adapted to provision of art experiences for the child. Emphasis will be placed on stages of growth, type of motivation, and ways of administering stimuli. Perceptual awareness and understanding and appreciation of visual art forms and their importance in the lives of people in our own and other cultures will be developed along with study of the exceptional child to recognize and encourage evidences of art potential as well as wholesome self-expression.

EL 546 MODERN PROCEDURES & SKILLS IN ELEMENTARY MUSIC 3 s.h.

New dimensions in thinking about elementary music for children. Emphasis is placed on the young student discovering interesting aspects of music – many sounds around him, rhythm through movement, use of percussive and simple method instruments, and music of countries. (Music Staff)

EL 547 RESOURCE MATERIALS IN CHILDREN'S LITERATURE 3 s.h.

Evaluation and selection of literature as a classroom resource for teaching and learning, including illustrations, folklore, poetry, modern and traditional fiction and non-fiction.

EL 548 CREATIVITY AND THE ELEMENTARY SCHOOL CHILD 3 s.h.

Ways to uncover creative abilities in children and techniques to direct these energies in the classroom by studying the role of the teacher as developer of these abilities. Students will be encouraged to develop their own creative abilities.

EL 550 THE COMMUNITY AND THE ELEMENTARY SCHOOL 3 s.h.

Development and maintenance of a purposeful program of communication between the elementary school and the community through study of selection, organization and functions of citizens advisory committees and cooperative use of various community services.

EL 551 RECENT INNOVATIONS IN ELEMENTARY EDUCATION 3 s.h.

Newer trends in classroom procedure, equipment, and materials as well as problems involved in improvement of instruction. Whenever possible sessions will be held to demonstrate and use recently developed materials. Individual research and field trips into many of the newer programs in elementary education.

EL 552 EVALUATING THE ELEMENTARY SCHOOL 3 s.h.

Criteria for evaluating the elementary school, its curriculum, professional and non-professional staff, and the community as an educational agency, along with an opportunity to use the evaluation instrument in a selected school district in terms of established educational objectives.

EL 553 SUPERVISION AND THE IMPROVEMENT OF INSTRUCTION IN THE ELEMENTARY SCHOOL 3 s.h.

Purposes, patterns, processes, and products of the supervision of instruction with emphasis on the supervisor as the educational leader whose concern is improvement of instruction through the on-going growth and professional development of his staff.

EL 554 ADMINISTRATION OF THE ELEMENTARY SCHOOL 3 s.h.

Principles and techniques of elementary school administration through review of qualities, training and experience background, and human

relationship qualities. Administrators will be viewed as leaders of teachers, children, non-professional staff and the community to develop and maintain the best educational plant possible.

EL 555 RECENT TRENDS IN HUMAN DEVELOPMENT AND LEARNING 3 s.h.

Concerned with recent literature and experimental works in field of learning. Studies will be limited to pre and elementary school child. Characteristics of learner, learning situation and motivation will be stressed.

EL 556 SCHOOL ADMINISTRATION 3 s.h.

Designed as basic course in school administration, intended to serve as an introduction to principles and practices of school administration for students who aspire to a supervisory or administrative position in public schools. Attention on human aspects of educational administration.

EL 557 ELEMENTARY SCHOOL PERSONNEL ADMINISTRATION 3 s.h.

Designed to provide background for potential principals and supervisors in matters pertaining to functions of various types of personnel employed in elementary school. Knowledge of organizational practices for proper and effective utilization of personnel and recognition of administrator's role in providing services to both staff and pupils.

EL 558 SCHOOL LAW AND NEGOTIATIONS 3 s.h.

An understanding of legal principles as they pertain to functions of personnel in public school system and to persons engaged in education. Study of statutory enactments, review of court actions through case studies, and analysis of collective negotiation laws and cases.

EL 560 EARLY CHILDHOOD STUDY TECHNIQUES AND ASSESSMENT TOOLS 3 s.h.

Scientific method of studying children between ages of three through eight years, inclusive. Through studying one child in depth, student learns to observe, record, and analyze pertinent information in order to make multiple hypotheses, and to suggest ways to help children toward positive self development. Tests for assessment of the young child in areas of perceptions, concept development, self-inventories, general intellectual ability, readiness, and academic ability. Students must select and have one child available as subject for in-depth study.

EL 561 EARLY CHILDHOOD PHILOSOPHY & CURRICULUM MATERIALS 3 s.h.

Introduces students to philosophy and historical background of pre-school through primary education (ages three through eight years, inclusive) and their influences on current programs and research, including current curriculum patterns of early childhood programs, materials available, and program planning for optimal development of children.

EL 562 EARLY CHILDHOOD FIELD STUDY EXPERIENCES 3 s.h.
Direct observation and participation of teaching in nursery-kindergarten, federal, state, or local supported early childhood programs. Seminar sessions will study appropriate programs with immediate application in a classroom. Constructing and presenting appropriate learning devices and audio-visual aids to meet individual differences and needs of children in the classroom. Close supportive relationships with parents and community will be stressed.

EL 577 SUPERVISED INTERNSHIP 3-6 s.h.
Students selected for this program receive continuing individualized guidance and supervision from an intern consultant during the semester. Registration only by permission of Graduate Committee.

EL 578 SEMINAR IN ELEMENTARY EDUCATION INTERNSHIP 3-6 s.h.
Consultants who are specialists in their fields will be invited to discuss with interns problems related to their intern teaching or work experience. Registration only by permission of Graduate Commission.

EL 579 INDEPENDENT STUDY IN ELEMENTARY EDUCATION 1-3 s.h.
Students will select one or more topics which are of critical importance in elementary education and will meet staff members for independent reading, study, analysis, and evaluation. Registration only by permission of Graduate Committee.

EL 580 SEMINAR IN ADVANCED RESEARCH 1-3 s.h.
Enrollment will be by special application only and will be limited to advanced post-master's students. Most work will be on an individual or small seminar basis with staff and will be concerned with readings, research, and evaluation of proposed research.

ENGLISH

CRAIG G. SWAUGER, CHAIRMAN; FRANK T. COMO, DIRECTOR OF DOCTORAL STUDIES; ANDERSON, BETTS, BRIGHT, COOK, CRAIG, CUREY, DAVIS, DAY, DeGEORGE, EISEN, ENSLEY, FREUND, GRAY, GRAYBURN, HAZLEY, HEIMER, IANNI, LUCKER, McCLURE, McMANMON, NANIA, OMRCANIN, SMITH, SWIGART, THOMAS, YOUNG.

MASTER OF ARTS AND MASTER OF EDUCATION

A candidate for a Master's degree in English may choose a program leading to either the Master of Education or the Master of Arts. The choice will depend on the background of the candidate and his purpose in pursuing graduate study. Both programs share a common aim of increasing the candidate's knowledge of English language and literature and introducing him to the discipline of advanced study. In addition, the Master of Education degree aims particularly at preparing teachers for public schools and community colleges.

After a student is admitted to the graduate school he will be assigned an advisor who will consult with him about the scheduling of courses. He should apply for candidacy before 12 credits have been earned.

I. Research Requirements

A thesis of 2-4 semester hours (GD 550) is required of all Master's candidates. A candidate who chooses to satisfy the research requirement with a two-credit thesis must have a thesis proposal approved by a project chairman and the Director of

Graduate Research. The candidate who chooses to do a thesis for more than two credits will submit a proposal to be reviewed by a departmental committee assigned by the Director of Doctoral Studies. After approval, the candidate will write the thesis under the direction of his thesis committee chairman and present himself for an oral examination after it has been completed.

II. Subject Matter Concentration

Courses EN 500 through EN 594 will provide the content studies for programs in both the Master of Education and Master of Arts degrees (see course descriptions, pages 67-69). From this list M.Ed. candidates will choose 16-20 hours; and M.A. candidates 18-24 hours, depending on the options elected for research, professional studies, or related studies.

III. Related Studies

The M.A. candidate may apply a maximum of six hours in a single related field (such as history, philosophy, psychology or other areas approved by his advisor) toward satisfying his requiement of 18-24 hours of subject-matter courses (see II above).

IV. Special M.Ed. Requirements

In addition to satisfying the general policy for admission to the Graduate School, the M.Ed. candidate must possess a Pennsylvania Teacher's Certificate in English or its equivalent from another state.

V. Professional Studies — the M.Ed. candidate will take from 2-6 hours from the following courses: EN 588, EN 589, EN 592, EN 593, LR 500, GD 516, SE 531, EP 580.

VI. Foundations of Education — 2 semester hours of work must be selected from the following courses: FE 511 to FE 515.

VII. Special M.A. Requirements

Foreign Language — The candidate for the M.A. degree must show a proficiency in a simgle language besides English. This language may be one of the modern foreign languages or a classical language. The proficiency requirement is satisfied by acceptable undergraduate credit of 12 hours in the language or by satisfactory performance on an examination administered by the Foreign Languages Department at Indiana, or by satisfactory performance on the Graduate School Foreign Language Test, administered by Educational Testing Service.

DOCTOR OF PHILOSOPHY PROGRAMS

There are two distinct doctoral programs in English, one leading to a Doctor of Philosophy degree in English and American literature, and the other leading to a Doctor of Philosophy in English Education degree which is designed to prepare English teachers for the community college.

I. Doctor of Philisophy Degree in English and American Literature

The program leading to the Doctor of Philosophy degree in English and American literature is designed for those who wish to teach at the four-year college or university level. A candidate for this degree is expected to acquire a broad knowledge in limited areas of study, and show through the completion of an acceptable dissertation the ability to conduct an independent investigation

of a topic approved by the department. To become a candidate the applicant must meet all the Graduate School requirements for candidacy, as well as the special requirements of the English department. Admission to course work beyond the Master's degree does not constitute admission to candidacy for the Ph.D. program. No specific number of course credits entitles a student to the degree, but a minimum of 60 semester hours of credit, exclusive of research credits, must be earned beyond the Bachelor's degree. Applications for candidacy will be reviewed by a departmental Program/Evaluation Committee after eight hours of graduate credit have been earned beyond the Master' degree and before 16 hours have been completed. In determining whether or not an applicant should be accepted as a candidate for the degree of Doctor of Philosophy, the committee will consider his scores on the Graduate Record Examination, and his performance in course work; and, whenever applicable, his performance as a teaching-intern.

The foreign language requirements for Ph.D. candidates in English must be completed before the comprehensive examination. For those candidates who do not satisfy this requirement by course work, the Education Testing Service administers examinations in French, German, Russian and Spanish. All other language examinations (and in special cases those in French, German, Russian, and Spanish) are administered by the Foreign Languages Departments of the University. The candidate's Program-/Evaluation Committee will make the final decision about what languages to accept and how much proficiency to require.

Candidates must demonstrate the capacity to teach effectively, either in the departmental teacher-internship program, or through other acceptable teaching experience. English is required of all candidates.

On application for candidacy, the candidate will be assigned to a dissertation committee who will help the candidate prepare a plan of study for a comprehensive examination, which will be offered after the candidate has completed one and one-half years of study. The comprehensive examination will be taken on the recommendation of the dissertation committee near the end of course requirements and before registering for GD 650, dissertation credits. For the comprehensive examination the candidate will be permitted to select three areas of his choice from eight areas of examination: English Linguistics; British Literature – Beginnings to 1500; Renaissance (1500–1660); Restoration and 18 Century (1660–1800); 19th Century (1800–1870); Modern British Literature (from 1870); American Literature to 1870; Modern American Literature (from 1870).

On approval of the dissertation committee, a candidate may take as many as 15 graduate hours of course work in a minor field in support of his major research interest.

A complete description of the Ph.D. program in English can be obtained from the English Department or from the Graduate School.

II. Doctor of Philosophy in English Education Degree

The program which leads to the Doctor of Philosophy in English Education is designed to prepare the candidate for teaching English in the community college. The candidate for this degree is expected to acquire a thorough understanding of the community college as an institution and to demonstrate, largely

through his semester's internship at a community college, his ability to teach effectively.

Upon admission to the program, the candidate will be assigned to a Program/Evaluation Committee which will, in consultation with the candidate, work out a program of study. The Program/Evaluation Committee will review also the candidate's application for candidacy, which must be submitted after eight hours of graduate credit have been earned and before 16 hours have been completed. Another function of the Program/Evaluation Committee will be to prepare a comprehensive examination, wirtten and oral, for each candidate.

Although there are some general course and research requirements for this degree, they may be waived by the student's Program/Evaluation Committee if they believe he has already acquired the information or specific competencies which these courses are designed to communicate or develop. These general course requirements are as follows: EN 589; EN 590; EN 592; EN 503; EN 591; nine hours of elective credits in psychology, sociology, adult education, etc.; a dissertation related to English education; a semester's internship at a community college.

A complete description of this degree program can be obtained from the English Department or Graduate Office.

COURSE DESCRIPTIONS

EN 500 HISTORY OF THE ENGLISH LANGUAGE 3 s.h.
Treats development of phonology, syntax and lexicon from Old English through Modern English. Attention to development of rhetorical theories and their relationship and influence on language.

EN 501 AMERICAN ENGLISH GRAMMAR 3 s.h.
Treats phonology, morphology and syntax of present-day English. Various approaches to analysis of English Grammar are treated, and detailed consideration to problems of dialect and standards of correctness.

EN 502 THE PSYCHOLOGY OF LANGUAGE 3 s.h.
An introduction to psycholinguistics for the English specialist. Fundamental ideas about language as a code, acquisition of language, and patterns of normal and aberrant human language behavior.

EN 503 LINGUISTICS AND THE ENGLISH TEACHER 3 s.h.
Effect of modern linguistic theory on teaching of English, with special emphasis on importance of sociolinguistics and psycholinguistics.

EN 504 SEMINAR IN LINGUISTICS 3 s.h.
Concentrates on a specific aspect of English Grammar to provide stimulus for independent study.

EN 510 SPECIAL TOPICS IN LANGUAGE AND LITERATURE 3 s.h.
Allows students to pursue subjects not covered in detail in existing courses, such as textual criticism, prosody, and computers and literature.

EN 511 MAJOR WRITERS 3 s.h.
Concentrates on one or two major writers of American or British literature, such as Twain, James, Wordsworth, Keats, etc.

EN 512 THE AMERICAN RENAISSANCE 3 s.h.
Works of major writers in mid-nineteenth century America.

EN 513 NATURALISM AND REALISM IN AMERICAN LITERATURE 3 s.h.
Examines masterpieces of American realistic and naturalistic fiction.

EN 514 MODERN AMERICAN FICTION 3 s.h.
Trends in contemporary American fiction provide a basis for special studies in such figures as Dreiser, Anderson, Fitzgerald, Lewis, Dos Passos, and Wolfe.

EN 515 TWENTIETH CENTURY AMERICAN DRAMA 3 s.h.
Contributions of major dramatists of twentieth century to development of the American theater.

EN 516 SEMINAR IN AMERICAN LITERATURE TO 1870 3 s.h.
Covers works of major writers in such areas as Puritan period, early republic, Romanticists, and other phases up to and including the Civil War.

EN 517 SEMINAR IN MODERN AMERICAN LITERATURE (from 1870) 3 s.h.
Research and study in depth of selected writers and movements, such as: particular author or group of authors; literary genre, literary movement; restricted period of time, etc.

EN 561 CHAUCER 3 s.h.
Major poetical works of Geoffrey Chaucer are studied primarily as literature but with considerable emphasis upon pronunciation, versification, language, and textual problems.

EN 566 SHAKESPEARE 3 s.h.
In addition to the plays themselves and the scholarship on them, study is directed to the historical and threatrical influences that affected Shakespeare.

EN 570 MILTON 3 s.h.
Intensive study in major prose and poetry of John Milton, with attention to religious and political controversies of the seventeenth century reflected in Milton's work.

EN 571 SEVENTEENTH CENTURY PROSE AND POETRY 3 s.h.
Major writers from the death of Elizabeth to 1660, excluding Shakespeare and Milton. Emphasis on Donne and the Metaphysical Poets, Johnson and the "Sons of Ben," and prose of Bacon, Burton and Browne.

EN 572 EIGHTEENTH CENTURY PROSE AND POETRY 3 s.h.
Considers such major figures as Dryden, Pope, Swift, Johnson, Defoe, Fielding, Sterne, Smollett, Burke, and Godwin.

EN 573 ROMANTIC PROSE AND POETRY 3 s.h.
Revolt against philosophic, social and aesthetic principles of the eighteenth century as revealed in works of major poets and essayists from 1798 to 1832.

EN 574 VICTORIAN PROSE AND POETRY 3 s.h.
Examines major social, political, economic, and religious issues in the works of leading poets and prose writers to 1890.

EN 575 SEMINAR IN BRITISH LITERATURE TO 1500 3 s.h.
Intensive study of some major works of Old or Middle English, such as *Beowulf, Sir Gawain and the Green Knight*, the *Pearl* and *Piers Plowman*.

EN 576 SEMINAR IN BRITISH LITERATURE – RENAISSANCE (1500 to 1660) 3 s.h.
Investigation of an area of English Renaissance that is not currently treated in course work. Subject will be announced in advance of registration.

EN 577 SEMINAR IN SHAKESPEARE 3 s.h.
Emphasis on individual study and research in primary and secondary sources.

EN 578 SEMINAR IN THE BRITISH NOVEL 3 s.h.
Focuses on novels of a given century; however, a thematic focus that ignores time divisions is sometimes used.

EN 579 SEMINAR IN BRITISH DRAMA 3 s.h.
Ranges from medieval to modern drama; however, content is not always limited to a specific period ro century, since the instructor may choose a thematic focus.

EN 580 BIBLIOGRAPHICAL METHODS IN ENGLISH 3 s.h.
Practical training in special methods and materials of research in English. Required of all majors in English and should be taken early in the program.

EN 581 LITERARY BRITAIN 3 or 6 s.h.
A three- or six-week's tour of major sites important to English literature. Specific itinerary varies from year to year but always includes London, Stratford, and Cambridge.

EN 582 CLASSICAL LITERATURE 3 s.h.
Ranges from drama to lyrics and epic poetry. Specific content is announced in advance.

EN 583 MODERN EUROPEAN FICTION 3 s.h.
Study in translation of major fiction writers of the twentieth century exclusive of British and American. Older generation – Proust, Gide, Kafka, Mann, and Unamuno – studied in relation to representatives of contemporary Europe such as Camus, Malraux, and Sartre.

EN 584 MODERN POETRY 3 s.h.
Study of Modern British or American or European poetry, or any combination of them. Specific focus is announced in advance.

EN 585 CRITICISM 3 s.h.
Major statements of critical theory from Aristotle onward within a historical context so that student becomes aware of evolution of literary standards in western culture. Aims are both historical and aesthetic.

EN 586 BLACK LITERATURE IN AMERICA 3 s.h.
Chronological study of Black American writing for students who have had little introduction to Black literature. Emphasis on twentieth century.

EN 587 LITERATURE AND THE FILM 3 s.h.
Explores relationship between film and literature and influences that each has had on the other.

EN 588 WORKSHOP IN PLAY PRODUCTION 6 s.h.
Various styles of production and of principles of directing in preparation of plays for a high school audience. Included are analyses of script, methods of casting and rehearsal, and technical aspects of production. The summer theater is used as a lab for observation and participation. One day of lecture and library work, four days of lab.

EN 589 ORIENTATION TO THE COMMUNITY COLLEGE 3 s.h.
Examines the community college from historical and philosophical perspectives. Designed specifically for students preparing for careers in the community college.

EN 590 FIELD EXPERIENCE IN THE COMMUNITY COLLEGE 3 s.h.
Introduces students to specific community colleges by having them observe classes and interview community college staff. To be taken early in the program.

EN 591 MULTI-MEDIA AND THE TEACHING OF ENGLISH 3 s.h.
Instructs students in methods of using media in teaching of language, composition, and literature. Teaches them also how to design and produce their own media materials.

EN 592 SEMINAR IN TEACHING BASIC COMMUNICATION SKILLS 3 s.h.
Instructs students in teaching of reading, speech, and composition to adults.

EN 593 SEMINAR IN TEACHING ENGLISH IN THE SECONDARY SCHOOL 3 s.h.
Explores recent developments in teaching of language, composition, and literature.

EN 594 SEMINAR IN THE TEACHING OF COLLEGE ENGLISH 3 s.h.
Examines various professional and pedagogical aspects of teaching college English as revealed by current practices and changes suggested by research. Study of materials and techniques of teaching freshman composition, advanced composition, and introductory literature, as well as upper level courses. Required of doctoral candidates.

NOTE: Special Topics in Language and Literature, and Major Writers, as well as all seminars, may be scheduled more than once, because subject matter will change with each offering of the course.

FOUNDATIONS OF EDUCATION

GERARD C. PENTA, CHAIRMAN: CHU, MERRYMAN, ROTIGEL, THIBADEAU, YOUCIS, COOPERATING STAFF — JOHN M. FELICE.

The Foundations of Education Department seeks to expose its students to a systematic inquiry into educational theories and practices through a philosophical, sociological, historical, and comparative analysis. Foundations study generates criteria for judgment and helps to formulate a Gestalt of various subjects. It also helps to develop an integral and cross-sectional view of education, while augmenting the construction, clarification, and evaluation of educational goals necessary for development of effective methods of instruction. Furthermore, it broadens perspectives and deepens analyses of policies and programs which help educational personnel find meaning and value in all educational activities.

COURSE DESCRIPTIONS

FE 511 HISTORICAL FOUNDATIONS OF EDUCATION 2 s.h.
Study of historical development of American education. European influences on philosophies and practices of American schools will serve as a background. Emphasis on development of education in America as influenced by various individuals and schools of thought. Historical trends will be related to current problems and practices in education.

FE 512 PHILOSOPHICAL FOUNDATIONS OF EDUCATION 2 s.h.
Analysis and evaluation of basic philosophies and their impacts upon education. Nature, value, means and ends of education and some other fundamental phases of schooling will be thoroughly examined. Stress on essentials enhancing an individual working philosophy of education; basic ideas heightening a sound philosophy for American schools.

FE 513 SOCIAL FOUNDATIONS OF EDUCATION 2 s.h.
Social and cultural forces which influence education. Particular stress on current problems as they relate to entire educational system and to curricular problems and practices in today's schools.

FE 514 COMPARATIVE FOUNDATIONS OF EDUCATION 2 s.h.
Educational theories and practices in different nations will be studied. Educational purposes, curriculum, methods, administration, school system, teacher education, and other educational features in America and those in other nations, will be analyzed, evaluated and compared.

FE 515 DECISION-MAKING IN CURRICULUM DEVELOPMENT 3 s.h.
Analysis of philosophical, sociological, and psychological basis for creation of curricular patterns, K—14. Includes utilization of technological devices, critical examination of basic concepts underlying determination of objectives, selection and organization of subject matter and of learning experiences in general. Current curriculum research will be analyzed, as will existing instructional materials and programs.

FE 516 PROFESSIONAL NEGOTIATIONS IN EDUCATION 3 s.h.
Study dimension of professional negotiations process in educational sector. Instructional tools will be case studies, lecture-discussion and reading assignments. Guidelines of public policy affecting public employer-employee relations will also be evaluated and analyzed.

FE 599 INTERNATIONAL EDUCATION STUDIES PROGRAM 3 s.h.
A travel-seminar conducted in a foreign country and designed to afford educators and students of education the opportunity to investigate teaching-learning process in cultural settings other than their own. Particular attention to such current educational issues as theories of curriculum development, methodology, teacher education, and changing value systems.

GEOGRAPHY AND REGIONAL PLANNING

LEONARD P. TEPPER, CHAIRMAN; MAURICE M. ZACUR, DIRECTOR OF GRADUATE STUDIES; BALLAS, HEIDEN, KULKARNI, LENGLET, MILLER, PAYNE, SHIREY, WEBER, WINSLOW, GAULT.

The pursuit of a Master's Degree with a major in Geography presupposes an undergraduate geography major. The department will accept applicants with limited background in Geography provided deficiencies be remedied through extra course work.

The Department invites students with a limited geography background to extend their general education through enrollment in geography courses. Students in Elementary, Social Science, Science, or Business may find Geography courses closely related to their fields.

The degree sought will depend upon the personal objectives of the individual. The Master of Education (M.Ed.) degree is professional and oriented to teaching.

The Master of Arts and Master of Science degrees are designed with knowledge of subject matter as the objective. Although these degrees are complete programs they also are designed as preparation for further graduate study. The Master of Arts and Master of Science degree differ both in their programs and in the background required.

The Master of Arts degree is for the student interested in the human, economic, and regional development of earth space.

The Master of Science degree is for the student with a mathematics and science background who is interested in the study of the physical factors in environment.

A student working for the Master's Degree in Geography shall demonstrate competence in the core program. The competence shall involve a knowledge of content as well as mature judgment and interpretation. In addition to a core program, students select a concentration of 10 credits in geography. Courses related to the concentration, approved by the advisor, may be taken outside the department.

Further, each degree candidate must complete the research requirement as established by the Graduate Council.

The student completes 30 credits in accordance with following divisions:

I. SUBJECT MATTER CONCENTRATION includes a core (6-9 credits) of GE 589 or 590, 591, and 594 plus 10-14 credits in geography and/planning according to student's interest and degree sought (M.Ed., M.A., M.S.). If core courses were completed at undergraduate level, additional courses will be elected with department consent.

II. RELATED STUDIES (6-10 s.h.) include courses taken to strengthen the concentration or provide other knowledge and understanding. M.Ed. candidates take 6 credits related to teaching a) Statistics or Learning Resources – 2 s.h., b) Foundations of Educations – 2 s.h., c) GE 511 or approved Psychology course – 2 s.h.

III. RESEARCH consist GD 515 or GE 592 plus Thesis (2-6 s.h.).

COURSE DESCRIPTIONS

GE 510 COMMUNITY COLLEGE TEACHING 2 s.h.
Considers goals and objectives of general education, discipline, various course organizations, materials, methods and teaching techniques. Supervised classroom teaching is required.

GE 511 CONTEMPORARY ISSUES IN GEOGRAPHY/PLANNING 2-3 s.h.
Topics may include: Geography of Disease, Urban Environment, Geography of Egyptian-Israeli Conflict.

GE 512 SETTLEMENT GEOGRAPHY 2-3 s.h.
Study of settlement patterns and processes: origins, diffusion, classification, pioneer settlement, settlement planning, and agricultural colonization.

GE 513 POPULATION GEOGRAPHY 2-3 s.h.
Variations in numbers, characteristics and dynamics of human population, models and theoretical constructs relevant to demographic structures and processes in a spatial context.

GE 514 QUANTITATIVE TECHNIQUES IN GEOGRAPHY & REGIONAL PLANNING 2-3 s.h.
Descriptive and inferential statistical techniques applied to spatial distribution and spatial association of physical and cultural phenomena and testing of spatial theoretical constructs.

GE 520 PHYSICAL GEOGRAPHY 2-3 s.h.
Study of development, classification, distribution and interpretation of: landforms, climates, soils, natural vegetation, underground resources, and water resources.

GE 521 ADVANCED HUMAN GEOGRAPHY (non-majors) 2-3 s.h.
A refresher course in geography for the non-geography majors. Both systematic and regional studies will be made to acquaint the student with modern geography methods and techniques.

GE 522 AEROSPACE SCIENCE (non-majors) 2-3 s.h.
Workshop conducted with visiting aerospace authorities on: space environment; history of flight; flight problems; satellites; space probes; space exploration; etc. Airflights available.

GE 523 URBAN GEOGRAPHY 2-3 s.h.
An analysis of city types, patterns and functions as influenced by geographic conditions and other factors. City planning techniques and field study are utilized.

GE 524 CULTURAL GEOGRAPHY 2 s.h.
A study of literature and methods of cultural geography. Topics include population, settlements, human ecology, culture areas, and related features.

GE 525-540 GEOGRAPHY REGIONAL SEMINAR ea. 2-6 s.h.
Each region is examined in detail for soil, topography, climate, vegetation, population, and interrelationships evolved. Only two are allowed toward M.A. degree. The following are offered from time to time:

GE 525 AFRICA, SOUTH OF SAHARA

GE 526 INDIA, PAKISTAN, AND INDO-CHINESE PENINSULA

GE 527 MEXICO, MIDDLE AMERICA & WEST INDIAN ISLANDS

GE 528 SOUTH AMERICA

GE 530 U.S.S.R.

GE 531 NORTHWESTERN EUROPE

GE 534 CHINA, KOREA, AND JAPAN

GE 535 AUSTRALIA AND PACIFIC ISLANDS

GE 540 GEOGRAPHY OF PENNSYLVANIA

GE 541 AGRICULTURAL GEOGRAPHY 2-3 s.h.
Specific problems will be studied in view of both the countries involved and world environment. Stress will be placed upon individual study and research as well as classroom lecture.

GE 542 INDUSTRIAL GEOGRAPHY 2-3 s.h.
Resources useful in the manufacturing process will be studied both as to their location and their place in the international exchange patterns of the world. Individual problems will be the core of the course.

GE 550A, B, C GEOGRAPHIC READINGS IN GEOGRAPHY 2-6 s.h.
Geographic readings may be taken either as individual study or in group study. Readings may be either to gain breadth of geographic knowledge or depth in a particular segment of geography.

GE 551 PROFESSIONAL PROBLEMS IN GEOGRAPHIC EDUCATION 2-3 s.h.
Classroom problems and discussion centered about "New Viewpoints in Geography." Individual reports, group discussion and research will be included.

GE 552 WORLD RESOURCES 2-3 s.h.
Problems of exploitation and utilization of world resources, i.e.: agriculture, mineral, forest, fish, food distribution, population growth, regional planning, factory location and energy conservation measures.

GE 553 POLITICAL GEOGRAPHY 2-3 s.h.
Geographic factors and conditions are analyzed as they relate to character and function of states. Political institutions are evaluated in light of geographic conditions.

GE 555 HISTORICAL GEOGRAPHY OF CITIES AND CITY PLANNING 2-3 s.h.
Examines process of city planning during ancient, medieval, renaissance periods, and a review of early planning in America, as well as present city planning.

GE 556 GENERAL CITY AND REGIONAL PLANNING 2-3 s.h.
Examines four phases involved in preparation of a general comprehensive plan: items such as land use, natural resources, topography, soils, geology, climate, and drainage are considered. Prerequisite: GE 555 or equivalent.

GE 557 URBAN DESIGN 2-3 s.h.
Offers students opportunity to work with various concepts of city and subdivision design utilizing the effects of topography, natural resources, and other physical elements. Prerequisite: GE 556 or equivalent.

GE 558 URBAN PLANNING: BASIC STUDIES AND ANALYSIS 2-3 s.h.
Research, analytical design and plan-making techniques in urban and regional planning. Examines basic items necessary to prepare urban and regional comprehensive plans. Prerequisite: GE 556 or equivalent.

GE 560 URBAN PLANNING SEMINAR 2-3 s.h.
Will vary in content according to students enrolled and their interest. Prerequisite: GE 556 or equivalent.

GE 561 URBAN PLAN IMPLEMENTATION 2-3 s.h.
Considers zoning, improvement programs, housing codes, building codes, methodology and application of administrative procedures, Federal and Local Urban Renewal Programs, site selection, program administration. Prerequisite: GE 556 or equivalent.

GE 573 CLIMATOLOGY 2-3 s.h.
Dynamic and physical aspects of climatology. Topics covered: heat and water budget; principles of climatic classification; Koppen, Thornthwaite; paleoclimates; regional climiates of continents; microclimates.

GE 579 CARTOGRAPHY 2-3 s.h.
Develops ability to map and diagram place location, area distribution, and statistical data in thesis or professional papers. Special maps, charts, and diagrams will be considered as required by students.

GE 588 PHYSIOGRAPHY (United States) 2-3 s.h.
Presents a detailed study of origin, classification, and structure of mountains, plains, coast lines, rivers, lakes, and subsequent modification by glaciers, stream erosion, wind abrasion, tides and ocean waves.

GE 590 MAP AND PHOTOGRAPHIC INTERPRETATION 2-3 s.h.
Designed to develop skill in extracting information and to synthesize data from maps and aerial photographs into geographic relationships related to geology, economy, land use, transportation, or strategic use.

GE 591 THOUGHT AND PHILOSOPHY IN GEOGRAPHY AND PLANNING 2-3 s.h.
Seminar in history of the discipline, great ideas of geography, leading professionals, and unresolved issues.

GE 592 GEOGRAPHIC RESEARCH 2-3 s.h.
Elements and techniques of scientific research, as applied to geography problems, are studied. A proposal thesis topic is developed.

GE 594 FIELD TECHNIQUES IN GEOGRAPHY 2-3 s.h.
Field techniques are discussed and evaluated. Field tools and techniques are used in the study of a specific area. Emphasis is upon skill and interpretation of areal patterns of geographic phenomena.

GE 595 REGIONAL FIELD STUDIES 2-3 s.h.
Field observation and analysis of geographical relationships which exist between various physical and cultural phenomena. The student must secure department permission prior to field work.

GE 599 SUPERVISED INTERNSHIP EXPERIENCE 0-2 s.h.
Supervised work experience at the graduate level. Open only to students who have completed eight credits of graduate work.

GEOSCIENCE

WALTER H. GRANATA, JR., CHAIRMAN; CLARK, HALL, PARK, PRINCE, SUTTON.

The geoscience department embraces several areas of study related to the earth, its structure, and its environment; specifically astronomy, geology, meteorology, and oceanography. The department participates in the Marine Science Consortium operated jointly with nine other Pennsylvania institutions at Lewes, Delaware. Graduate courses offered by the Consortium have the same acceptance as those taken on campus. Courses taken under descriptions in the Indiana University of Pennsylvania catalog, with tuition paid to Indiana, are treated as in-resident courses but those taken under other descriptions are subject to the same limitations of all transferred credits.

The department offers an M.A. degree in Geoscience and administers and advises students who seek an M.Ed. degree in science with a concentration in the geosciences.

CURRICULUM FOR MASTER OF ARTS DEGREE IN GEOSCIENCE

I. Qualifications of Entering Student

A. Bachelors degree in Education.
Minimum undergraduate requirements would include a total of 16 credit hours of science and mathematics. The mathematics should include a calculus course.

B. Bachelors degree with science or mathematics concentrate.

Undergraduate education course deficiencies will have to be filled for those anticipating a teaching career.

II. Required Core of courses (15 hours): GS 502, 561, 562, 571, 572, 541 and 542.
Each of the above disciplines may be satisfied by one of the following:
1. 7-9 week summer institute approved by the advisor and restricted to one of the above disciplines.
2. one year undergraduate or graduate training in one of the subject areas.
3. 3-4 credit core courses in Geoscience Department.

III. Requirements in Addition to Core (3 hours)
One complimentary science course – 2 credits from the following list: GE 589, GE 590, SC 575, SC 576, BI 548, BI 551, BI 553 or BI 556.

AND

Semester minimum 1 semester – 1 credit

IV. Electives (6 hours)
A. Departmental consent required for any course work taken.
B. Geoscience Department offerings:
1. Oceanography
a. Courses available at the Consortium, Marine Science 500, 3 cr.
2. Astronomy
a. Astronomy, one level above core
b. Operation of the Planetarium
3. Geology: GS 507, GS 505, GS 506, GL 510, GL 521, GL 522, GL 524, GL 527, GL 518, GL 520 or GL 530.
4. a. Special Topics
b. Independent Study
c. Thesis Research (6 hours)

COURSE DESCRIPTIONS

GS 502 PRINCIPLES OF GEOLOGY 3 s.h.
Intensive study of geological principles and processes, including forces at work within the earth and upon its surface and the resultant changes through time of the lithosphere and biosphere.

GS 505 EARTH MATERIALS 2 s.h.
Study of concentration of elements which make up the earth, formation of stable compounds called minerals from the available elements and aggregation of minerals to form rocks.

GS 506 EARTH DEFORMATION 2 s.h.
Study of deformation structures of earth's crust and principles and processes involved in their genesis.

GS 507 LIFE OF THE GEOLOGIC PAST 2 s.h.
Designed to acquaint students with basic morphologic features of invertebrate fossils and an understanding of their relative abundance and importance in the geologic past.

GL 519 CRYSTALLOGRAPHY 2 s.h.
Designed for the geologist, chemist, and physicist. Minerals are studied utilizing common field and X-ray notation. External and internal morphology is examined. Stereographic projection techniques are applied. Prerequisites: Fundamentals of Mathematics, plus Mineralogy or Physical Chemistry, or permission of instructor.

GL 520 PENNSYLVANIA GEOLOGY 2 s.h.
Diversity and abundance of geologic phenomenon within the state will be used to apply basic geologic concepts fo time, rock types and structures and geomorphic processes. Extensive field trips will be an integral part.

GL 521 MINERALOGY 2 s.h.
Workshop in study and identification of minerals, theory of mineral formation and structure, and mineral relationships. Simple chemical and physical techniques will be used for mineral identification. Prerequisite: Physical Geology or General Chemistry.

GL 522 PETROLOGY 2 s.h.
Study of rock phyla and their chemical and spatial relationships in the earth. Special attention to the genesis, mineral composition, and classification of rock types. Ecology of igneous, sedimentary, and metamorphic rocks is studied in detail. Prerequisite: Mineralogy.

GL 524 GLACIAL GEOLOGY 2 s.h.
Study of phenomenon of glaciation, including study of glacial movement, glacial deposits, and an investigation of possible causes of glaciation. A working acquaintance with glacial land forms is provided by means of field trips to glaciated region of N. W. Pennsylvania.

GL 527 GEOMORPHOLOGY 2 s.h.
Landforms and processes and principles that govern both their origin and their subsequent development. Prerequisite: Structural Geology.

GL 530 INVERTEBRATE PALEONTOLOGY 2 s.h.
A morphological study of major invertebrate life forms of geologic past and their distribution in space and time. Prerequisite: Historical Geology or Zoology.

GL 535 ECONOMIC MINERAL DEPOSITS 2 s.h.
Study of earth's metallic and non-metallic mineral resources with regard to processes of formation, methods of extraction (mining and drilling methods), methods of treatment, uses, and economic and environmental factors.

GS 541 THE SOLAR SYSTEM 2 s.h.
Characteristics and behavior of planets and their satellites, asteroids, meteors, comets, and other phenomena of the solar system. One of the major topics will be to investigate and criticize several of the theories of its origin. It will require some treatment of celestial mechanics but will not require a background of calculus.

GS 542 THE SIDEREAL UNIVERSE 2 s.h.
Characteristics and classification of the stars, their assemblage in groups and galaxies and their evolution. Techniques of gathering data are examined to gain an understanding of the role of the telescope, spectroscope and photometer in astronomical research. Lab exercises and night observations are a part of the course. Credit will be given only to those for whom the course represents an area of study for which credit has not previously been recorded.

GS 550 OPERATION OF THE PLANETARIUM 1-2 s.h.
Designed to acquaint student with the operation and use of the Spitz Planetarium. A satisfactory instructional program or show for a public group will demonstrate accomplishment of course objectives. Prerequisites: One year astronomy or equivalent.

GS 561-562 OCEANOGRAPHY I AND II 2-4 s.h.
An introduction to physical, chemical, biological and geological nature of the ocean. Oceanography I is a prerequisite to Oceanography II. Both courses require a five-day field trip to IUP's Marine Station at Lewes, Delaware. Lectures, readings, term paper, lab and field trip.

GS 571-572 METEOROLOGY I AND II 2-4 s.h.
Basic and advance considerations of physical processes of the atmosphere. Lectures, readings, term paper, lab.

GS 581 SPECIAL TOPICS 1-2 s.h.
As student demand and circumstances may dictate, special graduate courses may be offered by any member of the geoscience graduate faculty.

GS 582 INDEPENDENT STUDY 1-4 s.h.
Students may initiate research of their own choosing or assist in faculty research projects.

DEPARTMENT OF GERMAN AND RUSSIAN

KENNETH W. BRODE, CHAIRMAN; HAROLD M. SOMMER, DIRECTOR OF GRADUATE STUDIES; FRIES, VOELKER, WILLIAMS.

The programs leading to the M.A. and M.Ed. degrees in German have a number of goals in common and overlap in several areas. Both programs seek to improve the candidate's proficiency in German and to increase his knowledge of German culture and civilization. While sharing common aims, each program is flexible enough to be tailored to the individual candidate's purposes and desires for pursuing graduate study.

All graduate students in German should be familiar with the requirements and conditions regarding residency, admission to candidacy, transfer of credit, and scholarship described elsewhere in the Graduate School Catalog. A minimum of 30 semester hours of graduate work are required, including two semester hours of Elements of Research (GD 515) and two semester hours of thesis credit (GD 550). All candidates for advanced degrees in German will also demonstrate their achievement and proficiency by successfully passing comprehensive oral and written examinations on all graduate work in German completed at IUP.

Candidates for the Master of Arts degree must earn a minimum of 18 semester hours of credit in German courses (GM 510 through GM 553) and provide evidence of proficiency in a second foreign language. Candidates for the Master of Education degree must earn a minimum of 15 semester hours in courses and successfully complete one course in the area of Foundations of Education.

COURSE DESCRIPTIONS

GM 510 HISTORY OF THE GERMAN LANGUAGE 3 credits
History and development of German language, with special emphasis on relationships with English. Analysis of annals in Gothic, Old High German, and Middle High German using methods of historical and contemporary linguistics.

GM 511 ADVANCED COMPOSITION & STYLISTICS 3 credits
Development of abilities in German composition and stylistics which will lead to greater facility and accuracy in writing German.

GM 512 ADVANCED ORAL PRACTICE 3 credits
Designed to achieve fluency and accuracy in spoken Gemran by using various media to provide framework for guided discussions of current topics.

GM 513 GERMAN PHONETICS 3 credits
Analysis of physiological and linguistic factors of spoken German. Practice on critical areas of German pronunciation and intonation, with special emphasis on potential interferences between German and English.

GM 530 SEMINAR ON GERMAN CULTURE 3 credits
In-depth study of German culture from either an historical, fine arts perspective or from an anthropological, sociological point of view. Independent research with oral and/or written reports required.

GM 540 SEMINAR ON GERMAN LITERATURE 3 credits
In-depth study of particular author, or genre requiring independent research. Seminar topics to vary on a rotating basis, depending on staff and student interest.

GM 553 ADVANCED METHODOLOGY 3 credits
Demonstrations and discussions of current teaching strategies to provide teachers of German with greater expertise in dealing with problems in motivation, articulation, and other pedagogical concerns. Topics to vary from time to time, depending on background and experience of participants involved.

HEALTH AND PHYSICAL EDUCATION

D. SHELBY BRIGHTWELL, CHAIRMAN; JOHN CHELLMAN, DEAN, SCHOOL OF HEALTH SERVICES; AIERSTOCK, GODLASKY, LEPLEY, McCAULIFF, MILEFF, SLONIGER, SUTTON, TUCKER.

COURSE DESCRIPTIONS

HP 521 ADVANCED SEMINAR IN HEALTH AND SAFETY 2 s.h.

Provides students with current health and safety information and defines its relation to needs of the school child, home, community, and school. Application of health and safety instruction to modern principles of education, and materials to plan and implement an effective health and safety instructional program. Geared toward particular health and safety problems of students enrolled.

Credit may be used in general studies area of elementary curriculum and, subject to the approval of the department chairman or program advisor, as an elective in all other programs. (Tucker)

HP 530 WORKSHOP IN COMMUNITY SCHOOL HEALTH EDUCATION 2 s.h.

School, community and public health as related to interests of Workshop participants. Areas studies include mental health, nutrition, dental health, physical education, health services, environmental health, changing health patterns and health statistics. Teaching methods, special projects, consultations, visitations, discussions and sources of information and materials will be considered.

Credit may be used in general studies area of elementary curriculum and, subject to the approval of department chairman or program advisor, as an elective in all other programs. (Mileff, Tucker)

HISTORY

GEORGE T. WILEY, CHAIRMAN; IRWIN MARCUS, DIRECTOR GRADUATE STUDIES; CASHDOLLAR, CORD, FERGUSON, FRICKE, GOODRICH, HATFIELD, KADLUBOWSKI, LANDON, KLEIN, LEHMAN, MASTRO, MILLER, MOORE, OLIVER, RIFE, SMITH, VOGEL, GELBACH.

The Master of Arts Degree in History is designed to give students both breadth and depth in that academic discipline. As a terminal degree it prepares teachers for the secondary schools and community colleges. Students seeking scholarships and fellowship opportunities for work elsewhere beyond the master's degree should consult the Director of Graduate Studies within the department, Dr. Irwin Marcus. All programs of study are to be approved by him, or the departmental chairmen.

It is imperative that graduate students schedule SS 510, Research Methodologies in the Social Sciences or GD 515, Elements of Research, early in their graduate program.

CURRICULUM FOR MASTER OF ARTS DEGREE IN HISTORY

Students working toward the Master of Arts degree in History will complete a minimum of 30 semester hours of work in accordance with the following divisions.

Courses HI 501 through HI 593 will provide the subject matter concentration for the program. Candidates will choose 15-24 hours depending on the options elected for research and related studies. In research, students must meet a 6-9 hour requirement which includes methodology competency, a thesis, and sem-

inar(s). Independent study may be scheduled (0-5 s.h.) with no more than 7 hours for thesis and independent study combined. Work in related field (0-6 s.h.) is available to interested students who receive the permission of the chairman or the graduate advisor.

COURSE DESCRIPTIONS

HI 501 HISTORIOGRAPHY 3 s.h.
An introduction to various schools of historical writing with some consideration of leading practitioners. Required of all history M.A. candidates. (Staff)

HI 510 SEMINAR IN COMMUNITY COLLEGE TEACHING 2 s.h.
Designed especially to prepare community college instructors through an emphasis on objectives, materials, techniques and evaluation of general education programs in history. Summer only. Before programming, see advisor.

HI 511 READINGS IN HISTORY 3 s.h.
Directed reading of significant historical materials, focused on a general topic. (Staff)

HI 512 READINGS IN HISTORY 3 s.h.
Directed reading of significant historical materials, focused on a general topic. (Staff)

HI 521 HISTORY SEMINAR 2-3 s.h.
Area research in the discipline, culminating in a formal paper.

HI 522 HISTORY SEMINAR 2-3 s.h.
Area research in the discipline, culminating in a formal paper.

HI 531 ECONOMIC AND SOCIAL HISTORY OF PENNSYLVANIA 3 s.h.
Considers economic and social background of our state with an emphasis on regional development. Interplay of such factors as industrialization and immigration on organizational movements will be studied through the problem approach.

HI 532 U.S. – BRITISH COMMONWEALTH RELATIONS 3 s.h.
Aspects of United States and Commonwealth backgrounds and policies that aid mutual understanding and internal accord in modern world. (Gelback)

HI 534 RECENT U.S. HISTORY 3 s.h.
An analysis of fundamental changes in American culture since 1929. (Cord)

HI 541 MODERN EUROPEAN PROBLEMS 3 s.h.
Europe, from the economic, social, political, diplomatic, and cultural points of view. Attention also given to specific problems and to role of European powers in world affairs. (Rife, Oliver, Vogel, Ferguson)

HI 542 CONTEMPORARY LATIN AMERICAN PROBLEMS 3 s.h.
A study of major cultural, economic, political, and related problems currently confronting Latin American countries. (Moore)

HI 543 MODERN ASIAN-AFRICAN PROBLEMS 3 s.h.
An analysis of contemporary, social, economic, and political developments in selected areas of Asia and Africa. (Goodrich)

HI 544 HISTORY SEMINAR 2-3 s.h.
Area research in the discipline considering various facets of a central problem. Prerequisite: Research Methodologies in Social Science. (Staff)

HI 546 HISTORY OF EUROPE: 1815–1914 3 s.h.
A comprehensive study of factors contributed by Europeans in their national organization through their political, social, and economic activities. The understanding of these casual and intergroup relationships are basic to analysis and interpretations of the European world today. (Oliver, Rife)

HI 548 HISTORY OF THE UNITED STATES, 1876–1900 3 s.h.
Stresses reaction of various segments of a heterogeneous population to

rapid industrialization, urbanization, and corporation of American life and emergence of the U.S. as a world power; special attention to formation of new institutions.

HI 549 UNITED STATES URBAN HISTORY 3 s.h.
Process of urbanization that shaped American cities from colonial times to the present. (Miller)

HI 552 HISTORY OF ENGLAND TO 1688 3 s.h.
A survey of growth of English nation with emphasis on political, social, and economic developments leading to 17th century conflicts between Crown and Parliament. (Landon)

HI 553 HISTORY OF ENGLAND 1688 TO PRESENT 3 s.h.
A survey of growth of England as a democratic constitutional monarchy. Attention is directed to the industrial revolution and to imperial expansion, and to England's role in the 20th century world. (Wiley)

HI 554 HISTORY OF RUSSIA TO 1917 3 s.h.
A general survey of Russian history, culture, and institutions. Special consideration is given to study of historical forces which were formative of the 1917 Revolution. (Kadlubowski)

HI 555 HISTORY OF SOVIET RUSSIA 3 s.h.
A general survey of contemporary Soviet history, culture, and institutions. Special consideration is given to study of communist theory and its place in current Russian historiography. (Kadlubowski)

HI 558 HISTORY OF GERMANY TO 1848 3 s.h.
Evolution of German nation from its prehistoric origins, emphasizing medieval and early modern phases, to 1848. (Vogel)

HI 559 HISTORY OF GERMANY: 1849–1941 3 s.h.
Development of modern Germany from the Revolution of 1848, including imperial, republican, and totalitarian phases, to post-War formation of partitioned Germany. (Vogel)

HI 562 AMERICAN LABOR MOVEMENT 3 s.h.
Investigation of growth of American labor movement from eighteenth century to present; emphasis on role of Knights of Labor, American Federation of Labor, Industrial Workers of the World and Congress of Industrial Organizations. (Marcus)

HI 580 MEDIEVAL EUROPE I, 400–900 3 s.h.
History of early Medieval Europe, from decline of Rome to beginnings of High Middle Ages; emphasis on political, social, economic, religious, and intellectual developments. (Landon)

HI 581 MEDIEVAL EUROPE II, 900–1350 3 s.h.
History of late Medieval Europe, from High Middle Ages to Renaissance period; emphasis on political, social, economic, religious, and intellectual developments. (Landon)

HI 590 SOCIAL AND INTELLECTUAL HISTORY OF THE UNITED STATES TO 1875 3 s.h.
Social and intellectual factors which helped to shape the nation up to time of Henry George. (Cashdollar)

HI 591 SOCIAL AND INTELLECTUAL HISTORY OF THE UNITED STATES SINCE 1875 3 s.h.
Cultural forces which have helped to shape modern America. Ways of living characteristic of certain periods will be studied, together with more significant social-reform movements and their attendant systems of thought. (Cashdollar)

HI 593 HISTORY OF BLACK AMERICA SINCE EMANCIPATION 3 s.h.
Description and analysis of role of blacks in history of the United States since the Civil War; emphasis on key leaders, major organizations, leading movements and crucial ideologies of blacks in modern America.

SS 514 RESEARCH METHODOLOGIES IN SOCIAL SCIENCE 2 s.h.

GD 550 THESIS 2-4 s.h.

HOME ECONOMICS EDUCATION

ALMA KAZMER, CHAIRMAN AND DIRECTOR OF GRADUATE STUDIES; ANDERSON, BELL, FERNANDEZ, JONES, RUPERT, SHARMA, SIMKINS, STREIFTHAU, WOODS

The Graduate Program in Home Economics Education leads to a Master of Education Degree. The program is designed for students who wish to take advanced work beyond the bachelor's degree and to become better qualified for home economics education positions.

For admission into this curriculum a student must have completed a baccalaureate degree in home economics with major in home economics education or with a minimum of 35 semester hours of home economics, 19 semester hours in education, including home economics education and student teaching, and a minimum of 3 semester hours in educational psychology. The degree must be from an approved institution.

Food Service majors who have a B.S. degree from an approved institution may be admitted to this program. Graduates from this program with a Food Service and Nutrition background will not be qualified to teach in the public schools nor will this degree help them to meet state certification requirements for teaching Home Economics. However, students can become better qualified for leadership positions in their area of specialization.

Each student admitted to the Graduate School will be assigned a faculty advisor by the Chairman of the Department. This advisor will help the student plan a program of study. Any deviation from the degree requirements shall have the written approval of the advisor and the Department Chairman.

A thesis is required. The selection of and the proposal for the research shall be approved by the advisor and other members of the student's Graduate Committee. The research shall be carried on by the student under the direction of the research advisor and/or committee members.

CURRICULUM FOR THE MASTER OF EDUCATION DEGREE

Course requirements for the Master of Education in Home Economics Education include courses in professional education, subject matter, general studies, related studies, foundations of education and GD 550. GD 550 must be taken for two or four semester hours. If taken for two semester hours, the student will work with at least one advisor. For the four semester hour thesis, the student will work with a committee. Courses HE 521 through HE 578V provide the content studies (see Course Descriptions pages 82-84).

Two options are available for the Master of Education Degree:

Option A, **Home Economics Education,** requires eight or more credit hours in subject matter to be selected in two or more phases of home economics from courses HE 521 to HE 561.

Option B, **Home Economics Education with a Subject Matter Concentration,** requires eight or more credit hours from one phase of home economics, to be selected from courses HE 521 to HE 561.

Majors in both options will take nine or more credit hours in Home Economics Education, to be selected from courses

HE 570V to HE 578V. All majors must take either HE 571V or HE 572V. A course in research is also required, with majors being encouraged to take HE 578V. Courses HE 510V, HE 512 and HE 574V may be counted as home economics education or as subject matter depending upon the focus of the course. Three or more hours are required in General Studies courses and three or more hours in Related Studies courses. Consult recent catalog for course listings. Candidates must select one course from FE 511 to FE 515.

Dual level courses taken on the undergraduate level cannot be repeated on the graduate level for graduate degree credit.

A maximum of six (6) tour credits may apply toward degree requirements, but only one to four (1-4) credit hours may be applied in any one subject matter area. A maximum of four credits may be applied for any tour.

A statement regarding the subject matter concentration will appear on the student's transcript.

COURSE DESCRIPTIONS

GENERAL COURSES

General courses may be used to meet the requirements for subject matter or home economics education depending upon the focus.

HE 510V WORKSHOP IN HOME ECONOMICS 1-6 s.h.
Provides opportunities for experienced educational personnel to concentrate their study or common professional problems.

HE 512 TOUR IN HOME ECONOMICS 1-6 s.h.
Aspects of home economics are studied in relation to the culture of areas toured. Some tours which have been offered are: European Tour in Foods; European Tour in Clothing, Textiles and Furnishings; Oriental Tour in Family Life; Foods tour — U.S.A. Consult brochures, summer session catalogs or chairperson for specific offerings.

HE 574V SEMINAR IN HOME ECONOMICS 1-3 s.h.
Seminars in selected topics.

HUMAN DEVELOPMENT AND THE FAMILY

HE 521 PROBLEMS IN FAMILY LIVING 3 s.h.
Emphasis is placed on solving problems created by social change. New knowledge from science, medicine, sociology, economics, art and psychology is utilized to improve family living. Problems concerned with food, clothing, shelter, management, and family relationships are investigated.

HE 523 FIELD WORK IN FAMILY LIFE OR IN HUMAN DEVELOPMENT 3 s.h.
Designed to study individual and family interaction. Methods of working with various types of families through an analysis of research, scientific literature, and community programs are studied. Advanced graduate students plan and participate in laboratory-type work with individual families. (Permission of instructor for non-majors.)

HE 526 TECHNIQUES OF PARENT EDUCATION 3 s.h.
Focuses on scope and aims of parent education movement. Methods of helping families become more effective in their parent-child relationships are examined.

CLOTHING AND TEXTILES

HE 530 CLOTHING AND HUMAN BEHAVIOR 3 s.h.
Understanding factors affecting clothing decisions of differing individuals and families. Cultural, social, psychological and economic influences

are considered. Concepts from anthropology, sociology, psychology and economics are explored in studying the relation of clothing to human behavior.

HE 531 CREATIVE CLOTHING 3 s.h.
Factors that influence clothing design and sources of design inspiration are investigated. Lines, shapes, colors and textures are studied in the creation of clothing to fit the human body. Effects of fabric finishes, drapability, and dimensional stability on design are explored. Two major projects required.

HE 532 RECENT DEVELOPMENTS IN TEXTILES 3 s.h.
Designed to acquaint the student with new developments in textiles as they affect the consumer. Emphasis on understanding factors involved in selection, use, and care of new fibers, fabrics, and finishes.

FOODS AND NUTRITION

HE 540 ADVANCED HUMAN NUTRITION 3 s.h.
Nutritional needs and problems occurring at different stages in the life cycle are studied: pregnancy, infancy, early childhood, adolescence, aging.

HE 541 CULTURAL ASPECTS OF GOURMET FOODS 3 s.h.
Investigation, analysis, and interpretation of the art and science of cooking as influenced by historical, racial, religious and social customs. Both foreign and domestic gourmet cookery are studied including some food preparation.

HE 542 CONTEMPORARY ISSUES IN FOODS & NUTRITION 3 s.h.
Current information on food and nutrition is evaluated for its reliability.

HOME MANAGEMENT AND FAMILY ECONOMICS

HE 555 CONSUMER ECONOMICS 3 s.h.
Problems in consumer expenditures with emphasis given to effects of current economic and social forces. Individual investigations are required.

HE 556 PROBLEMS IN FAMILY FINANCE 3 s.h.
Advanced problems in personal and family finance. Individual investigations in current situations are required.

HOUSING AND INTERIOR DESIGN

HE 560 PROBLEMS IN HOUSING & INTERIOR DESIGN 3 s.h.
Influences which contribute to design of modern home and its furnishings and housing needs are studied in relation to stages in family-life cycle.

HE 561 HOUSEHOLD EQUIPMENT AND APPLIANCES 3 s.h.
In-depth study of household equipment in relation to energy and its distribution and consumption throughout the network systems of the house. Individual problems required.

EDUCATION COURSE DESCRIPTIONS

HE 570V HOME ECONOMICS IN AMERICAN EDUCATION 3 s.h.
Present status of home economics is reviewed in terms of the profession's history and philosophy. Role and contribution of home economics in relation to total educational program at the elementary, secondary, post-secondary levels. Trends and issues critical to future of home economics.

HE 571V CURRICULUM DEVELOPMENT IN HOME ECONOMICS 3 s.h.
Various tasks and processes of curriculum development with special attention on making realistic curriculum decisions and using innovative procedures in developing home economics curriculum.

HE 572V EVALUATION IN HOME ECONOMICS 3 s.h.
Study of nature and scope of evaluation in contemporary home economics programs using a variety of evaluative methods and techniques

designed to measure a comprehensive range of home economics educational objectives. Special attention to use and construction of teacher-made tests and evaluative devices.

HE 573V SUPERVISION AND ADMINISTRATION IN HOME ECONOMICS 3 s.h.

Deals with principles, methods, and techniques of supervision in home economics. Special attention to basic concepts in supervision such as human relations, communication process, decision-making, leadership strategies, and role of action-research in improving school practices.

HE 575V HOME ECONOMICS IN HIGHER EDUCATION 3 s.h.

Contemporary programs at college level are evaluated in terms of major issues, trends, and problems in higher education and professional home economics with emphasis on problems of curriculum development, effective teaching, guidance, and evaluation.

HE 577V INDEPENDENT STUDY IN HOME ECONOMICS EDUCATION 3 s.h.

Students select one or more current problems or significant topics for investigation and meet with an assigned staff member for guidance and supervision. Independent reading, study, analysis, and evaluation are emphasized. Where appropriate, special attention to use of research methods and experimentation in problem solving. Group meetings required once a month in addition to individual conferences. Registration only by permission of Department Chairman.

HE 578V RESEARCH IN HOME ECONOMICS EDUCATION 3 s.h.

Methodology is introduced and studied in terms of research problems. Reports by home economics, behavioral science, and education researchers are analyzed and evaluated. Designed to assist the student in defining a thesis. Students should complete HE 571V before scheduling this course.

LEARNING RESOURCES AND MASS MEDIA

DANIEL V. MATTOX, JR., CHAIRMAN; JACK LAVENBURG, DIRECTOR OF GRADUATE STUDIES; BERGMAN, JULIETTE, KLINGINSMITH, LESNESKIE, MacISAAC, MURRAY, SARGENT.

GRADUATE PROGRAMS IN MEDIA

In the department of Learning Resources and Mass Media the student may choose from the following programs:

I. Master of Education in Instructional Media
II. Instructional Media Specialist Certificate
III. Advanced professional training in the field of Learning Resources and Mass Media either in conjunction with or separate from the pursuit of a graduate degree in some other academic discipline.

Within these programs students may wish to develop a concentration of studies in such specialties as Learning Resources Center-Librarian, Instructional Materials Center Director, Materials Production, Instructional Television and Instructional Development. As such, they will do intensive work in photography, cinematography, graphic production, radio, television, design and development, media management or such combinations of these areas as they may work out with their advisor.

By careful structuring of their program it is possible for students to obtain the M.Ed. degree and the Instructional Media Specialist Certification concurrently. Usually this will require slightly more than the 30 semester hours of minimum credits required for the M.Ed., but students find it to their advantage to fulfill the requirements for both programs. This certificate is

issued by the Pennsylvania Department of Education. Obtain application form from the departmental secretary.

COURSE CONCENTRATION BLOCKS

All departmental offerings are distributed within the following course concentration blocks. Graduate media majors are required to take some preparation in each block. The program descriptions which follow the outline below describe requirements in detail.

Students are encouraged to visit their advisor and course instructor at frequent intervals, especially during schedule planning stages prior to pre-registration.

BLOCK A. Foundations and Research: LR 500 (see advisor), LR 501, LR 510, LR 515 and GD 550.

BLOCK B. Media Management: LR 530, LR 560, LR 569.

BLOCK C. Media Production: LR 504, LR 540, LR 543, LR 544, LR 545, LR 547, LR 549, LR 550, LR 552 or LR 571.

BLOCK D. Media and Instructional Development: LR 502, LR 503, LR 509, LR 548, LR 561.

AND, LR 580, 1-3 credits per each study or project.

PROGRAM REQUIREMENTS

I. MASTER OF EDUCATION IN INSTRUCTIONAL MEDIA

Admission Requirements

In addition to being admitted to the Graduate School the student must have taken the GRE (aptitude test only). Students wishing to transfer from another graduate program at Indiana to this program must have at least a B average in graduate courses taken here. The student shall secure from the departmental Director of Graduate Studies the necessary application forms. The applicant will then be asked to come for an interview with the departmental Graduate Committee and if accepted, a tentative program will be planned. LR 500 Seminar in Learning Resources – may be recommended to students who have not had a recent course in Audiovisual Education or who desire an introductory course in Learning Resources, but it may not be applied for credit for the master's degree.

After completion of at least six semester hours and before 12 semester hours, the student will make formal application to the Graduate School and to the departmental graduate committee for admission to candidacy for a masters degree. The candidate must have at least a B average in graduate courses taken at Indiana, including either the course PC 536, or EP 504 or EP 578, LR 510, and at least two courses from the Learning Resources Curriculum. He may then be asked to appear before the departmental Graduate Committee.

Further requirements for completion of the masters degree include completion of residency, a thesis, an internship, and evidence of at least one year of successful teaching experience or equivalent work experience in a media center or some aspect of media acceptable to the Graduate Committee. A minimum of 30 semester hours is required for the degree.

The Graduate School Bulletin sets forth a more detailed explanation of requirements. To secure a copy write to: The

Graduate School, Clark Hall, Indiana University of Pennsylvania, Indiana, Pa. 15701.

A. Learning Resources Concentration: 17-21 s.h.
   1. Required Courses: 8 s.h. in LR 515, LR 560 and LR 569.
   2. Electives: 6-7 s.h. required from LR 501, LR 504, LR 530, LR 540, LR 543-545, LR 547, LR 549, LR 550, LR 552, LR 571, LR 580.
   3. Electives: 3-6 s.h. required from LR 502, LR 503, LR 509, LR 548, LR 561.

B. Related Studies: 2 s.h. required.
   1. Required: 2 s.h. from EP 504, PC 536 or EP 578.
   2. Electives: GD 517, ED 507, EE 531, EE 551, EE 555 or CO 502.

C. Foundations of Education: 2 s.h. required from FE 511 to FE 515.

D. Research Techniques: 3-7 s.h. required from LR 510, CO 501* and GD 516*

E. Thesis or Project: 2 s.h. required in GD 550.

*See your advisor about these requirements

II. CERTIFICATION AS AN INSTRUCTIONAL MEDIA SPECIALIST

The specialist certificate in Instructional Media may be awarded to students who hold a permanent college certificate valid for elementary or secondary education and who complete 24 semester hours of graduate work in the curriculum or Learning Resources and Mass Media and related subjects. With the approval of an advisor, each student will select a balance of courses from each of the four course concentration blocks described earlier; however, LR 515, LR 530, LR 560 and LR 569 must be included in the courses selected.

Students not in the educational profession (i.e., Business or Industry) and who otherwise meet the admission requirements of the Graduate School may pursue the program for Instructional Media Specialist and upon completion of the requirements may be granted a special Certificate of Proficiency in Instructional Media by the University.

Graduate school admission does not automatically ensure acceptance into the certificate program. Successful applicants will present evidence of (1) the intellectual ability to do acceptable graduate work, (2) satisfactory scores on either the GRE or the Miller's Analogy Test, and (3) the requisite personal qualifications of character, health, and professional background. The departmental graduate faculty will make the necessary determinations.

III. Graduate students from other disciplines may wish to take advanced professional training in the field of Learning Resources and Mass Media.

COURSE DESCRIPTIONS

LR 500 SEMINAR IN LEARNING RESOURCES 3 s.h.

Major emphasis on differences in learning materials, learners and teaching methods. The student will do literary research for a better understanding of how learning resources are related to learning process in our society. (Mattox, Lavenbrug)

LR 501 THE CLASSROOM USE OF MOTION PICTURES 3 s.h.
Develops a basis for critical evaluation of films for various educational purposes. Emphasis on an understanding of production techniques, stereotypes, prejudices, and misconceptions which influence the quality of educational films, and upon the methods of selection, acquisition, evaluation and distribution of films. (MacIsaac, Mattox)

LR 502 PROGRAMMING SYSTEMATIC INSTRUCTION 3 s.h.
Will cover historical development theory and philosophy, audio instructional equipment, programmed texts, theories, of programming, types of programs available, analysis and evaluation of research. (Sargent)

LR 503 DESIGN & WRITING FOR MEDIA PRODUCTIONS 3 s.h.
Provides an introduction to script writing for films and filmstrips. Various styles and techniques of writing will be analyzed and each student will be expected to experiment with the techniques presented. Emphasis on writing and criticism, in class, of student script. (Mattox, MacIsaac)

LR 504 FOUNDATIONS OF BROADCASTING 3 s.h.
An examination of the historical, legal, and economical aspects of modern broadcasting. Extensive readings in fundamental theory and a study of current station and network practices, educational as well as commercial. (Lesneskie)

LR 509 PROGRAMMING MULTI MEDIA MATERIALS 3 s.h.
An advanced production course utilizing instructional development process to mediate an instructional sequence. Students will act as consultants in planning and production of a multi-media learning package. Prerequisite: LR 561. (Juliette)

LR 510 RESEARCH METHODOLOGY IN MEDIA 3 s.h.
Research methodologies and reports are studied and research proposals and reports are written. Types of research designs include historical, descriptive, inferential and quasi-experimental. Project designs and reports in the area of instructional/learning media production are studied separately from the four conventional types listed above. (Mattox)

LR 515 ROLE OF LEARNING RESOURCES 3 s.h.
Examines role of perception as it pertains to sensory experiences and inner cognitive processes in relationship to maturation, goals and drives, and environment. Seeks to relate psychological processes to learning resources, with emphasis on newer media. (Lavenburg)

LR 530 CLASSIFICATION AND CATALOGING OF LEARNING RESOURCES 3 s.h.
Principles of classifying and cataloging learning resources such as motion pictures, video tapes, filmstrips, slides, transparencies, disk and tape recordings, microfilm, microcard and microfiche, flat pictures, etc. For learning resources administrators and librarians. (Wolf)

LR 540 PREPARATION OF LEARNING RESOURCES 3 s.h.
Introduction to preparation of a wide variety of classroom materials, in which building coordinators, as well as others, can assist teachers – letterings, coloring, mounting, bulletin boards, feltboards, and preparation of pictures, maps, posters, charts, and graphs for projected and non-projected use. (Klinginsmith)

LR 543 SLIDE AND FILMSTRIP PRODUCTION 3 s.h.
Emphasizes techniques of color and b/w slide preparation, duplication, titling and binding; techniques necessary to produce color filmstrips on a commercial basis, and students will participate in making of a filmstrip through all stages, from script to screen. Techniques for making home-made filmstrips will also be explored. Each student must furnish his own 35mm camera, and an acceptable exposure meter. Prerequisite: LR 571 Photographic Fundamentals. (MacIsaac)

LR 544 BEGINNING CINEMATOGRAPHY 3 s.h.
Emphasis on effective use of motion picture camera and editing tools to make useful, locally produced teaching films. No previous experience is necessary, but the student should own or have access to an 8mm or 16mm camera, and an acceptable exposure meter. (MacIsaac)

LR 545 ADVANCED MOTION PICTURE PRODUCTION 3 s.h.
Production planning for motion pictures, directing, advanced picture

and sound editing techniques, and use of sound recording and lab facilities. In addition to live action cinematography titling, animation, and special effects photography will be investigated. Prerequisite: LR 544. (MacIsaac)

LR 547 ANIMATION 3 s.h.

Introduces a variety of motion picture animation techniques and offers practical experience in planning and carrying out production of animated sequences. Experimentation with filmograph, and cut-out, puppet, and full cel animation. Practice in designing, drawing, tracing, inking, and painting cels; preparation of blackboards, use of cel boards, animation camera, and stand; preparation of story boards and cue sheets; integration of visual and sound. Prerequisite: LR 544. (Mac Isaac)

LR 548 WRITING FOR RADIO AND TELEVISION 3 s.h.

For teachers, school administrators, and non-school persons interested in public service, non-professional, or educational broadcasting. Presents theory and practice in planning, writing, and producing various kinds of programs for listeners in and out of schools. Educational and/or radio experience is desirable but not required. (Lesneskie)

LR 549 TELEVISION PRODUCTION AND DIRECTION 3 s.h.

An intensive lab course using closed circuit facilities designed to develop skills in program production and direction. Theory and practice of production is examined with each student expected to produce a television program during the course. (Lesneskie)

LR 550 ADVANCED AUDIO RECORDING TECHNIQUES 3 s.h.

Theory and practice of recording sound for motion pictures, video tapes, audio tapes, sound filmstrips, etc. Will use sound on sound and other special recording techniques. (MacIsaac)

LR 552 ADVANCED TELEVISION PRODUCTION 3 s.h.

For advanced graduate students with prior training and experience in television. Advanced television production techniques, set design, lighting, remote video taping, special effects, and production of a professional quality documentary. Prerequisite: LR 549. (Lesneskie)

LR 560 MANAGEMENT OF LEARNING RESOURCES PROGRAMS 3 s.h.

Considers the problems in setting up and managing an integrated program, including production, selection, utilization, and management of Learning Resources Centers; and problems of finance and organization of the different services; relationships among school systems, colleges, and community and adult groups; and evaluation standards for various services. (Bergman, Murray)

LR 561 INSTRUCTIONAL DESIGN AND INSTRUCTIONAL DEVELOPMENT 3 s.h.

Theory for advanced graduate students where they will develop competence in: instructional design, systems approach to instructional decision making, defining purposes, organizing content, selecting learning methods and identifying technological developments to meet multiple needs of individuals and society. Prerequisites: LR 515 and Educational Psychology (see instructor). (Lavenburg)

LR 569 INTERNSHIP PROGRAM OF LEARNING RESOURCES SPECIALISTS 2-6 s.h.

A candidate would work in a carefully planned variety of roles in a comprehensive regional learning resources center or similar situation, television broadcasting or closed-circuit facility, motion picture production agency, programmed learning development organization, learning resources workshop program, little theater group, major museum or approved equivalent, under competent university and agency supervision, and would be rated by both the cooperating agency and the University. (Staff)

LR 571 PHOTOGRAPHIC FUNDAMENTALS 3 s.h.

Emphasis on use of still picture camera and the darkroom for instructional purposes, the making of b/w negatives, 35mm slides, copywork, developing b/w and color film, and b/w contact printing and enlarging. Each student must furnish his own 35mm camera and an acceptable exposure meter. No previous photographic experience is necessary. (MacIsaac, Mattox)

LR 580 GRADUATE INDEPENDENT STUDY 1-3 s.h.
The student may elect, with approval of his advisor, to do several different independent study projects. University facilities and equipment are provided but student must supply his own materials and pay for processing and production costs. Prerequisite: Successful completion of the basic courses in the medium selected, and professor's approval. (Staff)

MATHEMATICS

MELVIN R. WOODARD, CHAIRMAN; RONALD L. McBRIDE, DIRECTOR OF GRADUATE STUDIES; ANGELO, ARMS, BERTNESS, BROUGHTON, BURIOK, BUSOVICKI, CROOKS, DAVIS, DUNCAN, GIBSON, HARTMAN, HOYT, MADERER, McBRIDE, MORRELL, OAKES, PETERS, REBER, RETTIG, SHAFER, SHAWER, SHEPLER, SMITH, SPEAKMAN, STILWELL, WILLISON, WOLFE.

The degrees offered by the mathematics department are the Master of Education Degree with a major in mathematics and the Master of Science Degree.

The Master of Education program is designed for the secondary school teacher. Its purpose is to provide an opportunity for the student to increase his knowledge of mathematics and to become aware of research and innovations in mathematics education.

The Master of Science program can be planned to accomplish one of two purposes. It can serve as a professional degree for persons employed in positions which require an understanding of graduate mathematics, or it can serve to prepare the student for further graduate work in mathematics.

Upon admission to the Graduate School, each student will be assigned an advisor in the mathematics department whose approval is required for all courses leading to the Master's degree.

MASTER OF EDUCATION DEGREE

A minimum of 30 semester hours is required for the Master of Education Degree. Courses taken must satisfy the following

requirements.

1. A minimum of 18 hours of mathematics content courses must be selected. Each student is encouraged to choose a broad based program which includes at least one course from each of the areas of analysis, algebra, geometry, and probability and statistics. All three-credit hour graduate mathematics courses are mathematics content courses. The two courses MA 531 and MA 559, are required unless they have been completed in the undergraduate program.
2. A minimum of 8 hours must be completed in the areas of education and mathematics education. Exactly one two-hour course must be included from FE 511-515. Other courses which are acceptable in this area are MA 510, MA 511, MA 540, MA 542, LR 500, EP 580 or EP 504. Similar or higher level courses may be substituted with advisor approval.
3. All students must complete either MA 600 or MA 601. The thesis requirement may be completed by any one of the following three methods. The thesis credit is obtained by enrolling in GD 550 and completing the thesis requirement.

   a. The student may carry out some educational innovation of his own design or of appropriate experimental design under the supervision of a research advisor for two hours of thesis credit.
   b. The student may write a research paper in an area of mathematics or mathematics education for two hours of thesis credit. The paper must be approved by the research advisor.
   c. The student may complete a research paper in mathematics or mathematics education to be approved by a thesis committee for two or four hours of thesis credit.

MASTER OF SCIENCE DEGREE

Every candidate for the Master of Science Degree must take at least 30 semester hours of graduate work in mathematics.

1. The following courses (12 s.h.) are required for the Master of Science Degree: MA 533-534; MA 535-536; MA 561 and MA 573.
2. The following courses will also be accepted for credit toward the Master of Science Degree: MA 522, MA 524, MA 533-534, MA 535-536, MA 537, MA 558, MA 562, MA 563, MA 571, MA 572, MA 575-576, MA 590-593.
3. The following courses are offered in the area of independent study and research: MA 600, MA 690 and GD 550.

Each student is required to take MA 600. In addition, a two hour thesis, to be approved by the research advisor, or a two or four hour thesis, to be approved by a thesis committee, is required. The thesis credit is obtained by enrolling in GD 550.

COURSE DESCRIPTIONS

MA 510 THE TEACHING OF JUNIOR HIGH SCHOOL MATHEMATICS 2 s.h.

Explores problems of teaching mathematics at junior high school level. Emphasis on a discovery, laboratory-oriented approach to teaching. Prerequisite: Permission of the instructor.

MA 511 THE TEACHING OF SENIOR HIGH SCHOOL MATHEMATICS 2 s.h.

National and international forces shaping today's mathematics programs, curriculum development and research, art of generating interest, formation of concepts, proof, problem solving, generalization, and evaluation. Special attention to teaching of topics from algebra and calculus, and to modern approach of teaching geometry and trigonometry. Prerequisite: Permission of the instructor.

MA 522 THEORY OF PROBABILITY 3 s.h.

Develops probability as a mathematical model, using Bernoulli, binomial, Poisson, hyper-geometric, uniform, Gaussian, and exponential. Distributions of sums of independent random variables are derived by means of probability and moment generating functions. One form of central limit theorem is studied. A brief introduction to estimation and testing simple hypotheses. Numerous practical illustrations are studied. Prerequisites: Differential and Integral Calculus.

MA 524 MATHEMATICAL STATISTICS 3 s.h.

Deals with statistical estimation and testing hypotheses by means of large sample methods. Correlation and regression are studied with the bivariate normal distribution as the theoretical model. Numerous practical problems are included. Prerequisites: MA 522 or its equivalent.

MA 531-532 ADVANCED CALCULUS I, II 3, 3 s.h.

A rigorous investigation of continuity, differentiation, and integration on real p-dimensional space. The Riemann-Stieltges integral, infinite series, and infinite series of functions are also studied. Prerequisite: Permission of the advisor.

MA 533-534 COMPLEX ANALYSIS I, II 3, 3 s.h.

Introduces fundamental concepts of complex analysis and includes following topics: complex numbers, functions, sequences, analytic functions, elementary functions, complex integration, power series, Laurent series, singular points, calculus of residues, infinite product and partial fraction expansion, conformal mapping, and analytic continuation. Prerequisite: MA 531 or its equivalent.

MA 535-536 REAL ANALYSIS I, II 3, 3 s.h.

Classical theory of functions of a real variable and of measure and integration theory. Prerequisite: MA 531 or its equivalent.

MA 537 DIFFERENTIAL EQUATIONS 3 s.h.

The existence theorems of ordinary differential equations are proved and extended to higher dimensional spaces. Numerical methods are used to produce approximate solutions. Singular points for autonomous differential equations are studied. Prerequisite: MA 531, or its equivalent.

MA 540 HISTORY OF MATHEMATICS 2 s.h.

Men and ideas that have shaped the course of events in mathematics are examined. Major attention to developing activities for secondary school mathematics classroom which incorporate the historical viewpoint.

MA 542 CURRICULUM & SUPERVISION IN MATHEMATICS 2 s.h.

Basic principles underlying an effective mathematics curriculum are examined from both a theoretical and an experimental viewpoint. Role of supervisor as a source of stimulation, leadership, and expertise in teaching of mathematics is investigated.

MA 558 NUMBER THEORY 3 s.h.

Elementary properties of divisibility, congruences, Chinese remainder theorem, primitive roots and indices, quadratic reciprocity, Diophantine equations, and number theoretic functions. Prerequisites: Differential and Integral Calculus.

MA 559 INTRODUCTION TO ABSTRACT ALGEBRA 3 s.h.

Basic algebraic structures such as groups, rings, integral domains, and fields. Designed to develop the student's ability to construct formal proofs and to work within an abstract axiomatic system. Prerequisite: Permission of the advisor.

MA 561-562 ABSTRACT ALGEBRA I, II 3, 3 s.h.

Primary emphasis on development of polynomial rings, factorization, and field extension leading up to Galois Theory. Additional topics in group theory, ring theory, and study of modules are included. Prerequisite: MA 559 or its equivalent.

MA 563 LINEAR ALGEBRA 3 s.h.
Theory of vector spaces and linear transformations and applications to linear equations, determinants, and characteristic roots are studied. Prerequisites: MA 559 or its equivalent or undergraduate linear algebra.

MA 571 PROJECTIVE GEOMETRY 3 s.h.
An introduction to Klein's formulation of geometry of the invariant theory of a given set under a given group of transformations and develops projective spaces of 1 and 2 dimensions and conics and quadratic forms. Prerequisites: Undergraduate courses in linear algebra and geometry.

MA 572 AFFINE GEOMETRY 3 s.h.
Examines affine and metric geometries based on an axiom system stated in terms of linear algebra, which leads to important theorems of classical geometry. Prerequisites: Undergraduate courses in linear and abstract algebra.

MA 573 TOPOLOGY 3 s.h.
Basic topological concepts, including some topological invariants. Relationships between topology and other disciplines of mathematics are discussed. Prerequisites: MA 531 or its equivalent.

MA 575 FOUNDATIONS OF MATHEMATICS I 3 s.h.
Designed to acquaint the student with logical techniques used in proof and set theory. Topics include symbolic logic, rules and inference, validity of arguments, algebra of sets, cardinal numbers, the well-ordering property, and the Axiom of Choice.

MA 576 FOUNDATIONS OF MATHEMATICS II 3 s.h.
Properties of axiom systems including consistency, independence, and completeness for propositional calculus and first-order predicate calculus. Prerequisites: MA 575 and at least six semester hours of graduate level mathematics.

MA 590-593 TOPIC SEMINARS IN MATHEMATICS 3 s.h.
Special topics which go beyond the scope of regularly offered courses. Offered on basis of student interest and available staff. The student may take more than one Topic Seminar with the written approval of the advisor. Prerequisite: Consent of the instructor.

MA 600 METHODS OF RESEARCH IN MATHEMATICS 2 s.h.
Acquaints the student with mathematical literature and develops skill in the use of this literature. A proposal for independent study or research will be required. Prerequisite: At least six semester hours of graduate work.

MA 601 METHODS OF RESEARCH IN MATHEMATICS EDUCATION 2 s.h.
Types of research, methods of collecting data, and appropriate methods of statistical analysis are studied. A proposal for independent study or research is prepared. Prerequisite: At least six semester hours of graduate work.

MA 690 INDEPENDENT STUDY IN MATHEMATICS 3 s.h.
Under the guidance of a faculty member, a student may study some area of mathematics not in the regular courses.

MATHEMATICS FOR THE ELEMENTARY SCHOOL TEACHER

WILLARD HENNEMANN, DIRECTOR; McCOY, MUELLER, REIGH, SMITH, TROXELL.

This program, leading to a Master of Education Degree in Mathematics for Elementary School Teachers, is designed to give the elementary or middle school teacher both depth and breadth in the mathematical concepts essential to a contemporary school mathematics program. An integral part of the program will be to familiarize the students with recent developments in curriculum, instruction, and implementation of contemporary mathematics programs in the elementary schools. Upon completion of the program the student will be prepared to serve as a supervisor, coordinator or resource person for the elementary or middle school mathematics program within his school or school district. For teachers in the public schools, the program meets the credit requirements for Instructional Level II certification.

Each person admitted to the program will be assisted by an advisor in selecting course work and a research topic which will be best suited to the student's background and professional aspirations. Thus, a student who was an elementary major as an undergraduate with a concentration in mathematics would schedule his or her course work in the Subject Matter Concentration Area at a different level than a student with less background in mathematics. Mathematics courses listed in the Subject Matter Concentration Area of the program cannot be applied to meet requirements for the M.Ed. program in mathematics for secondary school teachers or for the M.S. program in mathematics.

CURRICULUM FOR THE MASTER OF EDUCATION IN MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS DEGREE PROGRAM

A minimum of 30 semester hours is required. Courses taken must satisfy the requirements below.

I. Subject Matter Concentration Areas: (a minimum of 15 hours of work will be required from the following:)
   A. Mathematics – At least 15 semester hours are to be selected from the following: EM 501, 502, 504-513; EM 515, EM 520-522. A more advanced course may be required by the advisor if the student's background warrants it.
   B. Related Studies – 6 semester hours of work in the courses listed for the curriculum of the M.Ed. program in science for the Elementary School Teachers, may be counted as part of the subject matter concentration with permission of the faculty advisor.

II. Professional Studies – A minimum of five semester hours (5) of course work including a thesis should be selected in this area after consultation with the student's faculty advisor. (See information about the thesis under Area IV – Independent Study and Research.)

III. Foundations of Education – One course should be selected from the following: FE 511-515, FE 599.

IV. The following courses are offered in the area of independent study and research: MA 601, MA 690, GD 515 and GD 550.

Students should schedule MA 601 or GD 515 (after first consulting their advisor) before beginning work in independent study and research culminating in a thesis.

Although all students completing the degree requirements for the program must engage in independent study and research culminating in a thesis, the approaches to fulfilling this requirement will be individualized.

COURSE DESCRIPTIONS

EM 501 BASIC CONCEPTS IN MATHEMATICS I 3 s.h.
For students who have not taken MA 160 or an equivalent course as undergraduates. Will give a good understanding of development and structure of systems of numeration up to and including the set of real numbers.

EM 502 BASIC CONCEPTS IN MATHEMATICS II 3 s.h.
For students who as undergraduates have not taken MA 250 or an equivalent course. Will give a basic understanding of algebraic properties of different mathematical systems, and help the student to understand how properties of number systems are interrelated.

EM 504 FOUNDATIONS OF ALGEBRA 3 s.h.
Concepts of an algebraic system and its basic structure, group, ring, integral domain, field and vector space are considered within the context of the mathematical maturity of the student. Other concepts include — relation and function, polynomials and polynomial equations, systems of equations, and systems of inequalities. Concepts at the elementary level are illustrated and studied to afford opportunity for application of the technique developed. Prerequisite: EM 502 or equivalent.

EM 505 PRINCIPLES OF GEOMETRY I 3 s.h.
Acquaints students with an informal approach to geometry by looking at world of shapes and their properties. Students involved in activities that can be used in elementary classroom; they will look at practical instances of various theorems of both plane and solid figures. The newer notation, vocabulary and methods will be used and discussed. Prerequisite: EM 502 or equivalent.

EM 506 PRINCIPLES OF GEOMETRY II 3 s.h.
This course is an extension of EM 515. Some topics will be studied in greater depth, but relatively informally. Non-Euclidean geometries studied through related activities. Prerequisite: EM 505 or equivalent undergraduate course.

EM 507 PRE-CALCULUS MATHEMATICS I 3 s.h.
Will examine function concept as applied to elementary real number functions and techniques used to graph these functions. Topics include real number functions such as absolute value function, step functions, linear, quadratic and other polynomial functions, trigonometric and other periodic functions, and inverse functions such as exponential and logarithmic functions. Students will examine curricular materials that develop these concepts in grades K—8. Prerequisite: EM 502 or equivalent.

EM 508 PRE-CALCULUS MATHEMATICS II 3 s.h.
Will extend investigations begun in EM 507 or real relations and their graphs. Topics included are relations and functions whose graphs are conic sections, transformations of coordinate systems and the complex number system as a vector space. Consideration given to placement of these concepts in the K—12 curriculum. Prerequisite: EM 507 or equivalent.

EM 509 INTRODUCTION TO NUMBER THEORY 3 s.h.
Introduction to topics of elementary number theory including: basic operations and properties of integers; divisibility properties of integers; modular arithmetic and congruences; diophantine equations; interesting relationships among numbers; applications of number theory in elementary school mathematics. Prerequisite: EM 502 or equivalent.

EM 510 INTRODUCTION TO LOGIC AND BOOLEAN ALGEBRA 3 s.h.

Introduction to some basic ideas, terminology and notation of logic and Boolean Algebra. Topics considered: symbolic logic, with special emphasis on algebra of propositions; applications of Boolean Algebra such as algebra of sets and switching circuits; an introduction to quantification theory and its value in determining validity of mathematical arguments, inference schemes and logical puzzles and a consideration of other topics in logic suitable for a K–8 mathematics curriculum. Prerequisite: EM 502 or equivalent.

EM 511 INTRODUCTION TO COMPUTING MACHINES AND THEIR USES 3 s.h.

Introduces student to computing machines and techniques which could have implications for the contemporary elementary school mathematics curriculum. Topics include: understanding of construction and uses of nomograms; slide rules; desk calculators and high speed digital computer; introduction to computer programming using "Basic" computer language; use of computer for Computer Assisted Instruction in grades K–8. Prerequisite: EM 502 or equivalent.

EM 512 INTRODUCTION TO PROBABILITY & STATISTICS 3 s.h.

Introduces students to elementary concepts of probability and statistics which will enable them to analyze data, make predictions and determine what concepts may be used with children. Prerequisite: EM 502 or equivalent.

EM 513 CONCEPTS OF CALCULUS 3 s.h.

Introduction to differential and integral calculus designed to develop basic concepts and to show both power of calculus and its position in mathematics. Relation of calculus to the fundamental concepts developed in elementary school and middle school mathematics. Prerequisite: EM 508 or equivalent.

EM 515 INTUITIVE TOPOLOGY 3 s.h.

Selected topological concepts from an intuitive rather than an axiomatic viewpoint. Topics included are: topological equivalence; networks; maps; Jordan Curve Theorem; topological transformations; spaces; Piaget's studies regarding topological understandings of children; methods and material for teaching related topics. Prerequisite: EM 505 or equivalent.

EM 520 CURRICULUM & INSTRUCTION IN ELEMENTARY SCHOOL MATHEMATICS PROGRAMS 3 s.h.

Gives the experienced elementary teacher access to latest literature, equipment, materials and procedures. Topics include: experimental programs that have made an impact on teaching and learning; criteria for selection of suitable new texts for a school district; ways of implementing a contemporary program; investigation, discussion, demonstration and evaluation of manipulative aids. Prerequisite: EM 502 or equivalent.

EM 521 THE LABORATORY APPROACH TO TEACHING MATHEMATICS IN THE ELEMENTARY AND MIDDLE SCHOOL 3 s.h.

Development of lab approach to the teaching of mathematics. Includes both an intensive study of techniques organization and supervision of laboratory activities and the practical design construction and implementation of materials. Lab approach is presented as one of the ways in which the concepts of mathematics studied in graduate school may be first developed in elementary school.

EM 522 DIAGNOSIS AND REMEDIAL TEACHING OF MATHEMATICS IN THE ELEMENTARY AND MIDDLE SCHOOL 3 s.h.

Examines why some children have difficulty in learning mathematical concepts and presents tools and techniques for diagnosing and remediating common difficulties in elementary and middle school mathematics. Course valuable for those teaching at elementary or middle school level.

MUSIC AND MUSIC EDUCATION

RICHARD S. KNAB, CHAIRMAN; CALVIN E. WEBER, DIRECTOR OF GRADUATE STUDIES; BACHMAN, BECKER, BERNAT, BIRD, BORST, CHA, DeCESARE, DiCICCO, DIETZ, FRY, GODT, GOLZ, HULBERT, INTILI, JOHNSON, KENNEY, LLOYD, LUCHSINGER, McNAUGHTON, MALITSKY, MYERS, OLMSTEAD, PERKINS, D. PERLONGO, S. PERLONGO, SARTORI, STAPLES, TETI, THORELL, VOUKLIZAS, WILDEBOOR.

The graduate program in music provides the student with opportunities to improve his skills as teacher, performer or scholar beyond the bachelor's degree. Upon acceptance by the Graduate School, each student may request or will be assigned by the Chairman of the Department of Music an advisor who will oversee his progress, help to plan his sequence of courses, and who will be responsible for the formation of his thesis or recital committee.

Admission: Undergraduate degree with major in music or its demonstrated equivalent is required. Placement examinations will be required in theory, music history, piano proficiency and principal performing medium. The advisor will use the results of these examinations to determine areas of deficiency and to prescribe specific electives.

CURRICULUM FOR MASTER OF ARTS IN MUSIC

I. Music History and Literature: MU 500, MU 516, MU 532 or GD 515; GD 550 and 18 s.h. of area courses.

II. Music Theory and Composition: Same as above.

III. Music Performance: MU 500, MU 516, MU 532 or GD 515, GD 551, 12 s.h. in applied music and six s.h. of music electives.

CURRICULUM FOR MASTER OF EDUCATION IN MUSIC EDUCATION

I. Music: MU 518, MU 519; four s.h. in MU 501 to 670.

II. Foundations: MU 520 and FE 513.

III. Music Education: six s.h. from the following: MU 535, MU 536, MU 533, MU 534 or MU 528.

IV. Elective Courses: 4 to 6 s.h.

V. Research Techniques: MU 532 and GD 550.

One of the following options may be elected: a recital, thesis or other approved independent research, perhaps relating directly to the candidate's own area of specialization in teaching.

Students completing 6 s.h. in Research Techniques will take 4 s.h. of Elective courses. Students completing 4 s.h. in Research Techniques will take 6 s.h. of Elective courses.

COURSE DESCRIPTIONS

MU 500 BIBLIOGRAPHY OF MUSIC 3 s.h.

Introduces graduate students to various types of music, music literature and bibliographical tools which exist and which may be used in research in music. As a project, each student will prepare an extensive annotated bibliography of a musical subject within his special interest.

MU 501 ADVANCED CHORAL CONDUCTING 2 s.h.
Material will include large choral works with and without accompaniment. Student will be expected to develop skills in reading score.

MU 502 ADVANCED INSTRUMENTAL CONDUCTING 2 s.h.
An intensive study of large instrumental works. Skill development of each individual will be stressed.

MU 503 MUSIC OF THE BAROQUE ERA 3 s.h.
A survey of music from about 1600 to 1750.

MU 504 MUSIC OF THE CLASSIC ERA 3 s.h.
A survey of music from abut 1725 to about 1827.

MU 505 MUSIC OF THE ROMANTIC ERA 3 s.h.
A survey of music from about 1800 to 1910.

MU 507 MUSIC OF THE 20th CENTURY 3 s.h.
A survey of the principal stylistic trends in music from 1900 to the present.

MU 508 MUSIC OF THE 16th CENTURY 3 s.h.
A survey of music from about 1500 to about 1600.

MU 510 SEMINAR IN MUSIC 3 s.h.
Subject matter will change each semester. Students will make presentations and write an extensive research paper. Seminar may be repeated provided subject matter is not (with departmental approval). An in-depth study can be made of narrowly defined areas, such as life and/or works of a specific composer or group of composers.

MU 511 COMPOSITION 3 s.h.
Composition of Music in various song forms through the rondos and the larger sonata allegro form. Careful analysis of similar forms of major composers. Instruction will be highly individualized and will depend considerably on personal interest of the student.

MU 512 ADVANCED ORCHESTRATION 3 s.h.
Consideration to problems of scoring for full symphony orchestra, string orchestra and chamber orchestra. Students will produce a full score and orchestra parts so that orchestration may be tested by actual playing by the University Symphony.

MU 513 ADVANCED BAND SCORING 3 s.h.
Problems of scoring for modern concert band. In addition, problems of scoring for brass band, woodwind choir, and percussion ensemble will be considered.

MU 514 ADVANCED CHORAL ARRANGING 2 s.h.
Four-part writing for chorus. Five, six, seven, and eight-part writing will comprise large part of the course. Special consideration will be given to problem of writing for men's and women's voices.

MU 515 CANON, DOUBLE COUNTERPOINT, AND FUGUE 3 s.h.
Application of contrapuntal techniques through analysis and creative writing. Included will be study and writing of two- and three-voice canons; two- and three-part inventions; and two-, three-, and four-voice fugues.

MU 516 ANALYTICAL TECHNIQUES 3 s.h.
Study of representative compositions of various periods, with emphasis on formal harmonic and stylistic analysis. Student will develop basic analytical techniques necessary for analysis of music of any period.

MU 518-519 COMPREHENSIVE MUSICIANSHIP 3 s.h. each
Combines undergraduate concepts and skills at an advanced level using an integrated approach. Emphasis on studies which prepare student to function in a variety of musical roles which are supportive of his major concentration.

MU 520 FOUNDATIONS OF MUSIC EDUCATION 2 s.h.
Study of historical, philosophical and social foundations of music education including current trends in educational thought and their implications for school music program.

MU 521 MUSIC LITERATURE AND MATERIALS
(NON-MUSIC MAJORS ONLY) 2 s.h.
Enhance musical background of elementary teacher through acquaintance with suitable literature and materials. (See Elementary Education Program).

MU 528 CONTEMPORARY INTERNATIONAL APPROACHES TO ELEMENTARY MUSIC EDUCATION 2 s.h.

An introduction to new developments in elementary music education practices based on techniques originated by Carl Orff in Germany, Zoltan Kodaly in Hungary and Shinichi Suzuki in Japan. Authentic adaptations of music and materials in lecture, demonstration and workshop situations.

MU 529 ADVANCED STRING PEDAGOGY 2 s.h.

Study of specific techniques and problems of teaching violin, viola, cello, and double bass in both individual and class situations.

MU 531 ADMINISTRATIVE PROBLEMS IN MUSIC EDUCATION 2 s.h.

Review of conventional administrative organization of music education in public schools. Role of music director, music specialist, consultant, and music resource teacher will be carefully defined. Consideration to problems of scheduling in public school. Current issues concerned with music education and public education in general will be considered including curriculum development.

MU 532 RESEARCH IN MUSIC EDUCATION 2 s.h.

Study of research techniques appropriate for music education including selection of research problem, collection of data, types of research, survey of current research studies in music education and use of library in connection with research problems. Elements of statistics are introduced as needed to interpret research reports. As part of requirements, student will prepare a written plan for research project or thesis.

MU 533 COMPARATIVE CHORAL METHODS 2 s.h.

Materials and procedures of preparation of vocal groups for public performance. Several accepted, yet contrasting, approaches will be considered, ranging from the Christiansen technique to that of John Finley Williamson. Special attention to program building.

MU 534 PRACTICUM IN INSTRUMENTAL MUSIC 2 s.h.

Consideration to those materials and procedures which have been proven by actual use in the United States. These various approaches will be compared and critically analyzed by the class. Rehearsal techniques, efficient use of time and basic motivation will be stressed.

MU 535 PSYCHOLOGY OF MUSIC EDUCATION 2 s.h.

An analysis of latest evidence produced by field of psychology in music education as applied in actual classroom situations.

MU 536 ADVANCED TECHNOLOGY OF MUSIC TEACHING 2 s.h.

Examination and application of modern communications media and their role in music education. Development of an experimental sound lab, use of electronic devices, synthesizers and computers. Application of systems approach and programmed learning to music education.

MU 537 TECHNIQUES OF THE MARCHING BAND 2 s.h.

Theory and practical application of fundamentals of precision drill. Also, this course deals with building "half-time shows," materials and instrumentation of the marching band.

MU 538 MARCHING PERCUSSION WORKSHOP 1-2 s.h.

MU 539 VOCAL WORKSHOP — THE BIOLINGUISTIC APPROACH 2 s.h.

Emphasis of study is on physiological structure and nature of singing in terms of complete correlation and coordination of anatomy and psychology with performance, analysis, and training. A practical, functional course correlating the latest scientific knowledge to immediate needs of workshop members and of those they teach.

APPLIED MUSIC (AM 501-670) 1-4 s.h.

The following courses will be taught in form of private lessons geared to individual student and aiming at maximum progress of each student, depending on background of the student and time available. The student should for any series of lessons use the first number in programming for the first time, the second number for the second time, etc.

AM 501, 551, 601, 651	Private Piano
AM 502, 552, 602, 652	Private Organ
AM 503, 553, 603, 653	Private Harpsichord
AM 505, 555, 605, 655	Private Voice

AM 506, 556, 606, 656	Private Violin
AM 507, 557, 607, 657	Private Viola
AM 508, 558, 608, 658	Private Cello
AM 509, 559, 609, 659	Private Bass Viol
AM 510, 560, 610, 660	Private Flute
AM 511, 561, 611, 661	Private Clarinet
AM 512, 562, 612, 662	Private Oboe
AM 513, 563, 613, 663	Private Bassoon
AM 514, 564, 614, 664	Private Saxophone
AM 515, 565, 615, 665	Private Trumpet
AM 516, 566, 616, 666	Private French Horn
AM 517, 567, 617, 667	Private Trombone
AM 518, 568, 618, 668	Private Baritone Horn
AM 519, 569, 619, 669	Private Tuba
AM 520, 570, 620, 670	Private Percussion

PHILOSOPHY

ROBERT M. HERMANN, CHAIRMAN

Graduate courses in Philosophy are primarily designed to provide elective study in an unfamiliar discipline for students teaching in the public schools. No graduate degree in Philosophy is offered. Degrees toward which credit in these courses may be used are indicated in the curriculum requirements sections of the catalog. Research or thesis work may be done in Philosophy with approval of the student's major program advisor.

COURSE DESCRIPTIONS

PH 580 READINGS IN RELIGIOUS THOUGHT 2 s.h.
An examination of religion as a vital human phenomenon. Treating both classical and contemporary themes: origin of western theological thinking; alienation; contemporary atheism; definitions of deity in western and eastern religions; the sacred; origins of religion.

PH 581 PROBLEMS IN LOGIC 2 s.h.
Difficulties of meaning (semantics), formal structures of reasoning (syntactics), and nature of truth finding (empirics) Fallacy.

PH 582 PROBLEMS OF ETHICS 2 s.h.
Rational justification of moral judgments. Analysis of function and meaning of moral language. (Staff)

PH 583 AMERICAN PHILOSOPHIC THOUGHT 2 s.h.
Study of more influential and original philosophies developed in America from colonial period to present. (Staff)

PH 584 PHILOSOPHY SEMINAR 2 s.h.
Area research in the discipline, considering various facets of a central problem. Students doing a thesis or research project in Philosophy will register for this course. (Staff)

PHYSICS

GARY BUCKWALTER, CHAIRMAN AND DIRECTOR OF GRADUATE STUDIES; BERRY, EDDY, FOX, GAGGINI, HERSHMAN, McNAMARA, MATOLYAK, MATOUS, RIBAN, ROBERTS, WHITSON.

The graduate program in physics offers a choice of two degrees: a Master of Education with a major in physics and a Master of Science with a major in physics. The student obtaining a master's degree for fulfillment of certification requirements will usually select the Master of Education Degree. The student obtaining a master's degree for additional preparation for research, an industrial position, or further graduate work will usually select the Master of Science Degree.

With a wide range of possible courses and research areas available, the student is required to have the consent of his departmental advisor before selecting a course or initiating a research project. Advisor assignments are made as soon as the acceptance of a graduate student reaches the physics department. The graduate student should arrange appointments with his advisor by contacting the secretary in the physics office.

CURRICULUM FOR MASTER OF EDUCATION DEGREE

Students in this degree program normally will be working toward full certification to teach physics in Public Secondary Schools. Each student's program will be designed to meet his individual needs by the student and advisor working together from a list of flexible requirements.

I. Subject Matter Concentration – 15-22 semester hours.
Required coursework is to be selected from the following and must include those courses marked with an asterisk: PY 510, PY 511*, PY 512*, PY 520, PY 531, PY 533, PY 535, PY 542, PY 545, PY 551-552, PY 561, PY 565, SC 575 and SC 576*.

II. Foundations of Education
One course must be selected from FE 511-515.

III. Research Requirement
Each Master of Education student is required to undertake an individual research problem and complete an acceptable thesis under the direction of one of the Graduate Faculty. The semester hour requirement is normally fulfilled by scheduling PY 600 and GD 550.

IV. Free Electives
The student may complete the 30 semester hour requirement by choosing from among any of the offerings of the Graduate School, with, of course, the advice and approval of his graduate advisor.

CURRICULUM FOR THE MASTER OF SCIENCE DEGREE

I. Admission Requirements. Any student meeting the requirements of the graduate school and having either a B.A. or a B.S. with the major in physics will be permitted to initiate study in this curriculum. Students having other degrees that

provide sufficient preparation in mathematics and physics may be permitted to initiate study with approval of the Chairman of Physics.

II. Subject Matter Concentration

A minimum of six courses to be selected with the approval of the advisor from the following: PY 536, PY 601-602, PY 634, PY 641, PY 651, PY 652, PY 661-662.

III. Research Requirement

Each Master of Science student is required to undertake an individual research problem and complete an acceptable thesis under the direction of one of the Graduate Faculty. The semester hour requirement is normally fulfilled by scheduling PY 600 and GD 550.

IV. Comprehensive Examination

The student is expected to pass a comprehensive examination.

V. Free Electives

The student may complete the 30 semester hour requirement by choosing from among any of the offerings of the Graduate School, with, of course, the advice and approval of his graduate advisor.

COURSE DESCRIPTIONS

PY 500 SPECIAL STUDIES 1-6 s.h.
A special topic may be offered at the discretion of the department to fulfill a special necessity.

PY 507 INTRODUCTION TO MATHEMATICAL PHYSICS I 3 s.h.
Designed to provide background needed for most 500 level courses. Student will acquire skills in problem solving in areas of mechanics and wave motion utilizing calculus and vectors. Prerequisite: Permission of advisor.

PY 508 INTRODUCTION TO MATHEMATICAL PHYSICS II 3 s.h.
A continuation of PY 507. Develops skills in problem solving in areas of electricity and magnetism utilizing vectors and calculus. Prerequisite: Permission of advisor.

PY 510 INTRODUCTION TO THEORETICAL PHYSICS 3 s.h.
Application of mathematical methods to physical theory in area of mechanics, electricity and magnetism including, partial differentials, vector calculus, and non-cartesian coordinate systems. Intended primarily for individuals in the M.Ed. program. Prerequisite: Permission of advisor.

PY 511 SECONDARY SCHOOL PHYSICS LABORATORY PRACTICE 1-3 s.h.
Designed not only to give the student training in use of PSSC and Harvard Project Physics Laboratory materials, but also to increase his ability to make the lab a more effective teaching tool.

PY 512 CURRICULUM DEVELOPMENTS IN SECONDARY SCHOOL PHYSICS 3 s.h.
Includes an intensive study of developments, such as PSSC and HPP. Philosophy, methodology and cognitive theory behind each curriculum will be considered. The lab equipment, experiments, and visual aids for each will be studied in their proper setting.

PY 520 ADVANCED LABORATORY PRACTICE 3 s.h.
Experimental Physics. Experiments are made available to supplement student's previous training. Data interpretation and experimental techniques are emphasized. Topics can include but are not limited to various methods of measurement and analysis of radioactivity, interferometry, spectrometry, microwave optics, NMR, mechanical vibrating systems, and thermal properties.

PY 531 MODERN PHYSICS 3 s.h.
An introduction to particle and wave properties of matter, atomic structure, quantum mechanics and the quantum mechanical model of the atom.

PY 533 THERMAL AND STATISTICAL PHYSICS 3 s.h.
A unified approach to study of thermodynamics through use of statistical mechanics. Temperature, entropy, chemical potential and free energy are introduced and applied to a monatomic ideal gas and systems of fermions and bosons in quantum and classical regions.

PY 535 ELECTRONICS 4 s.h.
DC and AC circuits, diode circuits, and transistor circuits, such as the common emitter and emitter follower amplifiers, are extensively covered. Negative feedback, operational amplifiers, oscillators, and digital logic are introduced. These topics are discussed in lecture and investigated by the student in the lab.

PY 536 ADVANCED ELECTRONICS 3 s.h.
Field effect transistors, noise problems, grounding and shielding, applications of digital logic, digital to analog to digital conversion techniques, transmission lines, and RCA 100A applications. Two one-hour lectures and one three-hour lab. Prerequisite: PY 535.

PY 541 ANALYTICAL MECHANICS I 2 s.h.
Kinematics, particle dynamics, graviation, free and forced harmonic motion, LaGrange's and Hamilton's Equations. Treatment of these topics utilizes vector calculus and differential and integral calculus.

PY 542 ANALYTICAL MECHANICS II 2 s.h.
Central-force motion, dynamics of rigid bodies, coupled oscillations, and vibrating strings.

PY 545 OPTICS 3 s.h.
Main concepts of modern optics utilized in areas of geometrical, wave and quantum optics. Includes presentation of illustrative examples in areas of laser technology, complex optical systems, interferometry, and spectroscopy.

PY 551 ELECTRICITY AND MAGNETISM I 2 s.h.
Coulomb's Law, electrostatic potential, Gauss' Law, dielectrics will be presented using vector calculus in a modern field formalism. Prerequisite: PY 510.

PY 552 ELECTRICITY AND MAGNETISM II 2 s.h.
Biot and Savart's Law, induced emf, vector potential, displacement current, special relativity and electromagnetic radiation will be presented using techniques introduced in PY 551. Prerequisite: PY 551.

PY 561 QUANTUM MECHANICS I 3 s.h.
Introduction to theory of linear vector spaces, linear operators, eigenvalues, eigenvectors and eigenfunction and their application to the harmonic oscillator, hydrogen atom, electron in a magnetic field, scattering and perturbations. Prerequisites: PY 222 and PY 331.

PY 565 INTRODUCTION TO NUCLEAR PHYSICS 3 s.h.
Survey of introductory nuclear physics including: nuclear size, mass, types of decay, models, forces, elementary particles, reaction theory.

PY 600 METHODS OF RESEARCH IN PHYSICS 2 s.h.
Offers the student practical training in special methods and materials of research in physics. Emphasis on types of research, use of physics and physics-related journals and library facilities. Prerequisite: Permission of department.

PY 601 THEORETICAL PHYSICS I 3 s.h.
Serves as a preparation in mathematical physics for graduate students. Included will be vector and cartesian tensor analysis, curvilinear coordinate systems, matrices, infinite series, ordinary and partial differential equations. Prerequisite: Permission of department.

PY 602 THEORETICAL PHYSICS II 3 s.h.
A continuation of PY 601, covering complex variables, and calculus of residues, Sturn-Lionville Theory, special functions, Fourier Series, integral transforms, integral equations and calculus of variations. Prerequisite: PY 601.

PY 634 STATISTICAL MECHANICS 3 s.h.
A quantum approach to statistical mechanics. Fermi, Bose, ideal gas and imperfect gas systems are investigated. Selected optics in kinetic theory of gases, transport phenomena, magnetic systems and liquid helium. Co-requisite: Quantum I.

PY 641 ADVANCED MECHANICS I 3 s.h.
Includes the following topics: LaGrange's Equations, Hamilton's Principle, Two body central force, Euler's Theorem, Small Oscillations, Hamilton's Equations, canonical Transformations. Prerequisite: PY 312 or its equivalent.

PY 642 ADVANCED MECHANICS II 3 s.h.
Rigid body mechanics, including Angular Momentum, Euler's equations, Processions, Special relativity, Covariant four dimensional formulation, Covariant Lagrangian formulation, Hamilton-Jacoby Theory, Introduction to classical field theory. Prerequisite: PY 641 or equivalent.

PY 651 ADVANCED ELECTROMAGNETIC THEORY I 3 s.h.
Solution of boundary value problems using Green's function and separation of variables techniques. Cartesian and spherical coordinate systems, multipole expansions, macroscopic electrostatics and magnetostatics, Maxwell's equations and plane electromagnetic waves. Prerequisite: PY 323 or equivalent.

PY 652 ADVANCED ELECTROMAGNETIC THEORY II 3 s.h.
Solution of electrostatic problems using cylindrical coordinates. Green's function for time-dependent wave equation, conservation laws, wave guides and resonant cavities, special Theory of Relativity, simple radiating systems and diffraction. Prerequisite: PY 651.

PY 657 SOLID STATE THEORY 3 s.h.
Quantum approach to solid state. Topics include second quantization or fermion and boson systems, electron theory of metals, electron-phonon interactions, and superconductivity. Selected subjects in thermal transport, magnetic phenomena. Co-requisite: Quantum I.

PY 661 QUANTUM MECHANICS II 3 s.h.
Fundamental concepts of quantum mechanics, theory of representations and linear vector spaces, relationship between quantum and classical mechanics. Approximation methods fo; stationary problems with applications to central potentials.

PY 662 QUANTUM MECHANICS III 3 s.h.
Approximation methods for time dependent problems with applications to scattering and transition theory. Elementary theory of many particle systems with applications to: molecules and chemical bonds, fundamentals of the quantum theory of solids, Dirac theory.

PY 690 RESEARCH PROBLEMS IN PHYSICS 1-6 s.h.
Introduction to advanced research problems through individual assignment. Prerequisite: Permission of department.

SCIENCE COURSES

SC 575 THE GROWTH OF SCIENCE AND ITS CONCEPTS I 3 s.h.
Traces development of science and its concepts from early beginnings to time of Newton. Interaction of science and math and their impact on growing society of Western Civilization is treated in a non-mathematical manner. Three hours lecture per week.

SC 576 THE GROWTH OF SCIENCE AND ITS CONCEPTS II 3 s.h.
Influence and development of concepts of science in Western Civilization are studied from Newton to present time. While the concurrent development of mathematics is considered, stress is placed on the non-mathematical understanding of basic concepts. Three hours lecture per week.

POLITICAL SCIENCE DEPARTMENT

RICHARD F. HEIGES, CHAIRMAN; CARONE, CHASZAR, GREEN, KEENE, LEE, MORRIS, PALMER, PLATT, SMITH, THORPE, WILSON.

The Political Science Department offers a major for students in the M.A. in Social Science Degree program (see pages 121-122) and a Concentration in the Social Science M.Ed. program (see page 121).

Subject to final approval, the Department plans to offer an M.A. in Public Affairs. For current status of plans and implementation dates for this new program, contact the Department Chairman.

MASTER OF ARTS IN PUBLIC AFFAIRS

The M.A. in Public Affairs Program is designed for part-time and full-time students who are seeking or are currently engaged in professional careers as administrators, project directors, staff analyst supervisors in government and in human service agency delivery systems and for teachers in the Social Sciences.

The M.A. in Public Affairs degree requires a minimum of 30 graduate credits, including a research and/or internship requirement. In order to complete a program for his or her particular professional needs, however, a **student may be required to complete specific courses, not for graduate credit, in statistics, accounting, business administration, computer methods, foreign language, economics, political science, psychology, and sociology.** The student should have sufficient preparation in the social sciences, or equivalent professional experience, in order to perform satisfactorily in the program. These requirements may be satisfied by prior course work, correspondence courses, qualifying examinations, or undergraduate courses offered at IUP. These preparatory requirements will be determined by the Political Science Department upon formal application to the Graduate School and may be completed after admission to the Graduate School prior to admission to candidacy for degree.

Required of all students is PS 575 and one Concentration of at least 21 s.h.: (A) Political Science, or (B) International Studies, or (C) Government and Public Service. The following courses, with Advisor approval, are open to students in **all** Concentrations: PS 501, 540, 474, and 590. Courses which may be included in Concentration (A) are: PS 550-586, with 560 or 561 required; Concentration (B): PS 570, and 581-586, with 572 required; Concentration (C): PS 550-559, 573, with 571 required. Up to 6 s.h. of Concentration (A) may be selected from other related fields; up to 9 s.h. for Concentrations (B) and (C). See department chairman or advisor for list of approved related courses.

The Research Requirement of a minimum of 6 s.h. may be met by scheduling SS 514 or GD 515 or PS 574 plus 2-6 s.h. Thesis credit and/or 2-6 s.h. Internship (with Research Project), PS 599. For students with Government and Public Service Concentration (C), Internship may be waived and up to 6 s.h. credit may be extended to those students with at least three years prior experience in public administration, as evaluated by and at discretion of the department.

Students will receive, in addition to M.A. in Public Affairs degree, a Certificate in Political Science, or International Studies, or Government and Public Service. Certification requirements include: Meeting all Degree and Concentration requirements; a 3.5 QPA; and written and oral examination by Departmental Committee. Non-degree students who do not have a baccalaureate degree may also seek certification through meeting 18 s.h. Concentration requirements, 3.5 QPA and examination.

COURSE DESCRIPTIONS

PS 501 STUDIES IN POLITICAL SCIENCE 1-3 s.h.
In depth study of a specific problem or topic not regularly treated in courses. Emphasis is on readings and writing papers assigned by instructor. (Staff)

PS 510 SEMINAR IN COMMUNITY COLLEGE TEACHING 2 s.h.
Designed especially to prepare Community College instructors through an emphasis on objectives, materials, techniques and evaluation of general education programs in Political Science. Summer only. (Staff)

PS 540 INDEPENDENT STUDY 1-3 s.h.
Readings and written assignments on a specific topic determined by instructor in charge. May be repeated. (Staff)

*PS 550 THE PRESIDENCY 3 s.h.
An examination of the Office of President with attention to constitutional foundations, evolution, structure powers, and functions. Some comparisons are made between presidential and parliamentary systems and between offices of President and Governor. (Thorpe)

*PS 551 THE LEGISLATIVE PROCESS 3 s.h.
A study of legislative process in the United States, with an emphasis on the National Congress and the Pennsylvania State General Assembly. Focus on organization and function of legislative bodies. American legislative institutions will be compared with those of other nations in order to gain some perspective on the American System. (Thorpe)

*PS 552 PUBLIC OPINION 3 s.h.
A study of nature of public opinion with political system. Attention to formation of public opinion, expression, propaganda, mass media, and interest groups. (Green)

*PS 553 AMERICAN POLITICAL PARTIES 3 s.h.
Role of people, parties, and pressure groups in politics of American democracy. Attention is devoted to sectional and historic roots of national politics, voting behavior, pressure group analysis, and campaign activities. (Smith)

*PS 554 METROPOLITAN PROBLEMS 3 s.h.
Analyzes multiplicity of problems facing our metropolitan areas. Contemporary developments such as urban renewal, shrinking tax base, federal aid to cities, subsidized mass transit, municipal authorities, and political consolidation are examined. Pennsylvania municipalities are contrasted with those of other states. (Green)

*PS 558 JUDICIAL PROCESS 3 s.h.
Explores nature and limits of judicial power, courts as policy-making bodies, selection of judges, decision process, external forces impinging on the courts, and role of Supreme Court in its relationship with Congress, the Presidency, and federalism. (Keene)

*PS 559 CONSTITUTIONAL LAW AND CIVIL LIBERTIES 3 s.h.
Study of civil liberties and civil rights issues through leading Supreme Court decisions. Topics treated include First Amendment rights, procedural due process and the Bill of Rights, and equal protection problems in civil rights. (Keene)

*PS 560 POLITICAL PHILOSOPHY 3 s.h.
Evolution of Western political tradition of Constitutionalism from Plato and Aristotle to Locke and Montesquieu; religious and rational foundations; medieval theories of authority and representation; early modern

theories of state and sovereignty. Concepts of law, natural rights, liberty, and equality, and justice are treated in detail. (Wilson)

*PS 561 MODERN POLITICAL THOUGHT 3 s.h.
Development of Western political thought since the mid-16th century; classic liberalism; conservative thought; modern irrational ideologies such as fascism and national socialism; socialist thought; contemporary collectivist liberalism. (Wilson)

PS 570 FOREIGN POLICY STUDIES 3 s.h.
Considers selected problems in international affairs. Emphasis on those problems and conflicts which have evolved in the post-war era, particularly as they relate to position of the United States in world affairs. Specific problems are approached both in terms of countries involved and the existing balance in world economic, ideological, and power structure. (Carone, Platt)

*PS 571 FEDERAL ADMINISTRATIVE POLICY 3 s.h.
An intensive study of role of federal agencies and their administrators in determining and developing public policy. Public administration in practice is emphasized by utilizing case studies. Previous course in Public Administration is desirable but not required. (Palmer)

PS 572 COMPARATIVE POLITICAL STUDIES 3 s.h.
Theory, structure, politics, and problems of selected foreign governments. Specific political ideas and governmental institutions are also analyzed from comparative point of view. Special emphasis on comparing and contrasting ideas and institutions with those of the United States. (Carone, Morris, Platt)

PS 573 REGIONAL POLITICAL STUDIES 3 s.h.
Examines structure and function of state, county, and municipal governments. Emphasizes problems faced by government at these levels and seeks solutions to these problems. Pennsylvania governmental forms are stressed but are contrasted with those of other states. (Heiges)

PS 574 POLITICAL SCIENCE SEMINAR 3 s.h.
Area research in the discipline, considering various facets of a central problem. Prerequisite: GD 515 or SS 514. (Staff)

PS 575 POLITICAL SCIENCE SEMINAR 3 s.h.
Exposes the student to approaches, methods, tools, focus, and boundary lines of political science study. As an introductory course to graduate work in political science, it is required for all students in M.A. in Public Affairs degree program, and should be scheduled early in program. Prerequisite: Open only to students enrolled in M.A. in Public Affairs, M.Ed. in Social Science, and M.A. in Social Science. (Green, Thorpe)

*PS 581-586 POLITICAL SYSTEMS 3 s.h.
Comparative study of government and politics of a selected region. PS 572 Comparative Political Studies should be taken first, if possible.

*PS 581 LATIN AMERICA (Chaszar)
PS 582 AFRICA (Carone)
PS 583 ASIA
PS 584 MIDDLE EAST
PS 585 CENTRAL AND EASTERN EUROPE (Platt)
PS 586 ATLANTIC COMMUNITY (Carone)

PS 590 SPECIAL TOPICS 1 s.h.
Series of "mini-courses" on special topics requiring less attention than the usual course. Topics usually are a specific problem area, still or concept. Prerequisite: Open only to students enrolled in M.A. in Public Affairs, M.Ed. in Social Science, and M.A. in Social Science. Requires specific approval of advisor as to relevance of topic to student's program and concentration. This is **not** "independent study," in that students electing the "mini-course" will meet as a group. However, individual study assignments may be made between course meetings. Scheduling of meetings will be flexible. For example, in some instances the group may meet in an all-day Saturday session, once a month, for three months. At

*May not be programmed by students with undergraduate credit for course.

times two or more related but separate "special topics" sections may be scheduled back-to-back. Political science staff will develop and offer "special topics" on the basis of apparent student needs and interests and interests of the faculty members. Since this is not "independent study," however, the "Special Topics" "mini-course" must generate sufficient enrollment to justify each offering. Occasionally a "mini-course.' will be offered by an "adjunct" or "visiting professor," where this can be arranged. May be repeated, up to 6 s.h. (Staff)

PS 599 POLITICAL SCIENCE INTERNSHIP 1-6 s.h.

Practical experience in government and politics. Students are individually assigned to a cooperating local or state government agency, political party, or interest group, or to a federal or international agency when arrangements can be made. Students report periodically to professor in charge, and undertake reading assignments and write such reports and papers as the professor may require. Course credit hours will be determined by department chairman and by professor in charge. Course grade will be determined by the professor. Prerequisite: Must have approval of instructor and department chairman. Course is offered only when arrangements for internship can be made with cooperating agencies and is normally available only to full-time students or during summer sessions. (Heiges)

PSYCHOLOGY

RICHARD D. MAGEE, CHAIRMAN; CARL W. SCHNEIDER, DIRECTOR OF GRADUATE STUDIES; CARTWRIGHT, EDGAR, GROVER, JACOBS, PATTON, REID, RITTLE, ROSS, STIRES, THORNTON, VANDECREEK, WALZ. ADJUNCT PROFESSORS: BESHAI, KLINEDINST, LEVIT, PLUMMER, RUSNAK, PALMER.

The Psychology Department offers a Master of Arts degree with concentrations in General Experimental Psychology and Clinical-Community Psychology. The areas of concentration are so designed that graduates will be prepared to either immediately assume responsibilities in appropriate professional settings or proceed to doctoral level study. Students interested specifically in community college teaching should enroll in the Master of Arts in Social Science program (see Social Science) with a major in psychology and a minor in another social science discipline. The department also offers courses open to students following other degree programs in the graduate school.

MASTER OF ARTS IN PSYCHOLOGY

In addition to meeting the requirements for admission to the Graduate School, a student intending to work toward a Master of Arts in Psychology must have completed an undergraduate major in psychology, including courses in Experimental Psychology and Statistics, and earned a B average or higher in courses taken in psychology, have taken GRE's, and have submitted the Psychology Department admission form.

After completion of at least six hours of graduate work in psychology at Indiana, a student may formally apply to the Psychology Department's Graduate Admissions Committee for admission to degree candidacy. At this time, the applicant must have attained at least 3.00 GPA, present satisfactory scores on the Graduate Record Examination (both Aptitude and Advanced Tests) and recommendations from faculty members familiar with his work. He should also submit for approval a complete course program planned in consultation with his advisor.

The M.A. in Psychology will be awarded at the successful completion of 40 hours work in the Clinical-Community concentration or 30 hours work in the General Experimental Concentration. Course requirements for both concentrations are PC 501, PC 502, and a 4-hour thesis. The Clinical-Community concentration requires, in addition to the above, 9 hours of PC 575. The remaining courses are to be selected in consultation with advisor.

COURSE DESCRIPTIONS

PC 501 RESEARCH METHODS I 3 s.h.
Research designs stressing experimental and statistical controls appropriate to lab studies are examined; lab included. Prerequisites: Undergraduate courses in statistics and experimental psychology; Psychology major or minor.

PC 502 RESEARCH METHODS II 3 s.h.
Research strategies characteristic of clinical psychology and applied social psychology will be studied. Prerequisites: Introductory courses in statistics and experimental psychology; Psychology major or minor.

PC 510 COMMUNITY COLLEGE TEACHING INTERNSHIP 2 s.h.
Designed to prepare community college instructors through an emphasis on objectives, materials, techniques, and evaluation of general education programs in Psychology, Prerequisite: Psychology major or minor.

PC 530 PSYCHOLOGY OF GROWTH AND DEVELOPMENT 2 s.h.
A comprehensive study of human growth and development from conception to death. Research findings in physiological, cognitive, emotional and social factors will be studied and applications made to total development of one individual. Major developmental theories will be considered.

PC 533 THE PSYCHOLOGY OF PERSONALITY 2 s.h.
Provides an overview and integration of the major theories of personality.

PC 534 ABNORMAL PSYCHOLOGY 2 s.h.
Theories of pathological behavior with reference to clinical and experimental data.

PC 536 PSYCHOLOGY OF LEARNING 2 s.h.
Learning theories are explored in terms of their breadth, historical development, and impact upon educational philosophy and practices.

PC 540 COMMUNITY PSYCHOLOGY & MENTAL HEALTH 3 s.h.
Contemporary models of mental health and illness which stress the relationship between individuals and the social systems with which they interact.

PC 541 ASSESSMENT OF INTELLIGENCE 3 s.h.
The student is introduced to various tests of general ability and is given training in their administration, scoring and interpretation. Prerequisites: Course in Introduction to Psychological Measurement or its equivalent; departmental consent.

PC 542 ASSESSMENT OF PERSONALITY 3 s.h.
The student is introduced to various tests of interest and personality, and is given training in their administration, scoring, and interpretation. Prerequisites: Course in Introduction to Psychological Measurement or its equivalent; departmental consent.

PC 545 THEORY AND TECHNIQUES OF PSYCHOLOGICAL INTERVENTION 3 s.h.
Provides an introduction to major approaches to therapeutic psychological intervention; psychoanalysis, client-centered psychotherapy, group techniques and behavior modification. Prerequisite: Departmental consent.

PC 546 PRINCIPLES OF BEHAVIOR MODIFICATION 3 s.h.
Applications of learning theory principles in changing maladaptive behavior, both on the individual and group levels.

PC 550 SOCIAL PSYCHOLOGY OF CHANGE 3 s.h.
Models for influencing behavioral environments through using techniques designed to change social structures.

PC 552 ENVIRONMENT AND BEHAVIOR 3 s.h.
The effects of political, social and economic environments on individual and group behaviors.

PC 558 SOCIAL PSYCHOLOGY 3 s.h.
Presents a scientific approach to the study of behavior and experience of individuals in relation to other individuals, groups and culture. Prerequisite: Psychology major or minor.

PC 561 MOTIVATION 3 s.h.
Provides a systematic study of how behavior is initiated, sustained, directed, and terminated. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major or minor.

PC 562 PHYSIOLOGICAL PSYCHOLOGY 3 s.h.
The relationship between behavior and the anatomy and physiology of the nervous system. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major or minor.

PC 563 PERCEPTION 3 s.h.
The interaction of sensory and cognitive events in production of awareness of the world. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major or minor.

PC 565 CONDITIONING AND LEARNING 3 s.h.
The focus is on animal research with discussion of classical conditioning discrimination learning and adversive control of behavior. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major or minor.

PC 566 HUMAN LEARNING AND MEMORY 3 s.h.
The methodology employed in areas of verbal learning and retention, encoding, storage, and retrieval processes. Lab projects are conducted. Prerequisites: Course in experimental psychology; Psychology major or minor.

PC 567 ANIMAL BEHAVIOR 3 s.h.
Behavior of various animal species and man are examined from the position of evolution of behavior as adaptation to a changing ecology.

PC 568 LEARNING THEORIES 2 s.h.
A review of current research and theoretical developments in the psychology of learning.

PC 571 SEMINAR IN PSYCHOLOGY 3 s.h.
Designed to examine a special topic in Psychology in added depth, students prepare presentations representing selected research areas. Departmental permission required.

PC 572 INDEPENDENT STUDY IN PSYCHOLOGY 2-6 s.h.
Individual students develop and conduct research studies in consultation with a faculty member. Prerequisites: Psychology major or minor; departmental consent.

PC 574 PSYCHOLOGY OF ADULTHOOD & OLD AGE 3 s.h.
A review of theories and research which apply to young, middle, and later adulthood. Physical, social, cognitive, and psychological factors will

be utilized in examining adult behavioral and developmental problems, with particular emphasis on the later stages.

PC 575 ADVANCED PSYCHOLOGICAL PRACTICUM 3-9 s.h.
Provides graduate students qualified in either psychology or guidance with working experience in a clinical situation. Prerequisites: Permission of Director of Psychological Clinic or Coordinator of Practicum.

PC 590 HISTORY OF PSYCHOLOGY 3 s.h.
A comprehensive overview of historical antecedents of contemporary psychology. Prerequisite: Psychology major or minor.

READING

DR. DONALD C. McFEELY, COORDINATOR

There is a marked need for qualified and properly certified reading personnel in public and parochial schools at all levels of instruction. In particular, there is a noted shortage of both Reading Specialists and Reading Supervisors in the Commonwealth of Pennsylvania.

In keeping with these demands, Indiana University of Pennsylvania provides and directs the formal learning experiences of the Reading Specialists and Reading Supervisor at the graduate level. These learning experiences entail both classroom and clinical instruction by faculty members who are sincere and dedicated to the students and the programs. In addition, the faculty members represent a marked balance with a variety of backgrounds and areas of expertise – reading, elementary and secondary education, psychology and reading research.

Specific Requirements

Students seeking a Master of Education degree with a major in reading and who desire certification as Reading Specialists are required to complete a minimum of thirty (30) semester hours of course work selected from the curriculum designed for the preparation of Reading Specialists.

A student who wishes to secure reading specialist certification and who does not desire a Master of Education degree may do so by formulating a program of studies with the Coordinator of the Graduate Reading Program contingent upon admission to the Graduate School. The program for each student will be formu-

lated based on the student's needs, educational experiences and teaching experiences. All students who desire certification are required to either take the required courses as outlined in Program for Reading Specialist, or demonstrate or document the competencies required in the program.

Criteria for final recommendation for certification of program enrollees are as follows:

1. Mastery of competencies determined through the use of oral and/or written examination administered by Reading Faculty.
2. Recommendation of Reading faculty.

Those students seeking certification as Reading Supervisors must have completed fifteen (15) semester hours of course work in the Reading Supervisor's program.

Procedures for Admission

An applicant must first be admitted to the Graduate School as a qualified student. He then secures the Reading Program application packet from the Coordinator of the Graduate Reading Program, completes the forms and returns them to the Coordinator's office for review. Applicants may be requested to report for an interview with the Reading Faculty and will be notified of admission to the program.

Upon admission to the Reading Program, students should arrange to meet with the Coordinator to formulate an approved program of courses.

MASTER OF EDUCATION DEGREE IN READING

Reading Specialist Program

I.*Reading: Required – 15 s.h.: ED 500-503; ED 510.

*All required of students who are seeking certification.

Students must take ED 500, 501, and 510 before taking practicum courses. Students may begin their reading courses with either ED 500 or 510. Before taking ED 501 students should have completed ED 500.

II. Educational Research: 6-7 s.h.: ED 598*, GD 515 and GD 550.

*Required of students who are seeking certification.

III. Foundations of Education: Select one of the following: FE 511-515.

IV. Related Areas: Six (6) hours required from the following: ED 507-508, ED 520, ED 596-597; EE 547, EN 544, EE 555*, or EP 504* or EP 578*.

*Required of students who are seeking certification.

READER SUPERVISOR PROGRAM

ED 504, ED 505*, ED 515, ED 562*, ED 570*, ED 596, ED 597, EE 532.

*Required

COURSE DESCRIPTIONS

ED 500 BASIC FOUNDATIONS OF READING INSTRUCTION 3 s.h.
Emphasis on nature of reading process; nature of learner; advancement of pupil's reading skills; how pupil learns to read; what teacher can do when pupils fail to learn to read.

ED 501 DIAGNOSIS AND REMEDIATION OF READING DISABILITIES 3 s.h.
General principles, types, and specific approaches to diagnosis that are appropriate for classroom and clinic. Students will examine and administer diagnostic instruments. Methods and materials used in remediation at elementary and secondary level will be discussed and demonstrated.

ED 502 READING PRACTICUM: DIAGNOSTIC CASE STUDIES 3 s.h.
By preparing a case study on a pupil who has been referred to the Reading Clinic, the student will administer and interpret a battery of tests, both formal and informal, leading to specific recommendations for further testing, if appropriate, and remediation. Prerequisite: ED 500, ED 501, and ED 510.

ED 503 READING PRACTICUM: REMEDIAL CASE STUDIES 3 s.h.
Student will design a remedial program for an individual pupil, basing their work on a previously written diagnostic case study report including implementation of program, selection of appropriate learning materials, administration of further diagnostic tests to determine additional problems, if any are suspected, and recommendations for further remediation. Prerequisites: ED 502 and its prerequisites.

ED 504 REMEDIATION OF SEVERE READING DISABILITY CASES 3 s.h.
An extension of ED 501, it considers scope of extreme disability reading cases, analysis and treatment, including (1) primary and secondary classifications of reading difficulties, (2) specific patterns of syndromes of severe reading disabilities together with diagnosis and prognosis of them, and (3) specific treatment advocated for these disabilities. Practical experience with a student diagnosed as a severe reading disability case under supervision of specially trained university personnel.

ED 505 ADMINISTRATION AND SUPERVISION OF READING PROGRAMS 3 s.h.
An understanding of functions and duties of reading supervisor and effective ways of implementing them.

ED 507 INSTRUCTIONAL MATERIALS IN READING FOR CHILDREN AND YOUTH 3 s.h.
Designed to guide teachers, librarians, principals, reading specialists, and other curriculum workers in viable choices of appropriate materials for reading instruction.

ED 508 READING IN THE CONTENT AREAS 3 s.h.
Problems related to teaching students reading and study skills specifically needed in each of subject areas at elementary and secondary levels. Content teachers learn how to develop student's competence in these skills as part of their regular classroom instruction. Reading specialists study ways to help classroom teachers be more effective in this kind of instruction.

ED 510 THE TEACHING OF READING IN THE SECONDARY SCHOOL 3 s.h.
Specific guidelines and techniques for developing reading skills in each of the content areas.

ED 520 READING INSTRUCTION FOR THE CULTURALLY DISADVANTAGED 3 s.h.
Sociological, psychological, experiential and linguistic variations that are sources of disadvantages and enables teacher to modify attitudes, diagnostic procedures, materials and instructional procedures to enhance reading/learning skills.

ED 570 INTERNSHIP IN SUPERVISION OF READING INSTRUCTION 4 s.h.

Students are assigned to various school systems and clinical agencies in which they perform as supervisors under university and faculty selected local administrative personnel. Internship includes research, discussions, evaluation of reading programs, and supervision of developmental, corrective, and remedial programs. Prerequisite: Administration and Supervision of Reading Program.

ED 596 INDEPENDENT STUDY IN READING EDUCATION 1-3 s.h.

The student, with cooperation of the reading faculty member with whom he expects to work and his reading faculty advisor, engages in a study individually or with a small group on some problem or field not clearly defined in existing courses. Prerequisite: Permission of the Coordinator.

ED 597 SEMINAR IN SPECIAL PROBLEMS IN READING 1-3 s.h.

Topics such as reading disability, preschool reading instruction, adult literary programs, or organization of school-wide reading programs may be covered. Prerequisite: Permission of the Coordinator.

ED 598 RESEARCH SEMINAR IN READING 2-3 s.h.

Students will scrutinize and report on research in reading according to their interest. Areas of research concentration can vary each term. Prerequisite: Permission of the Coordinator.

ROMANCE AND CLASSICAL LANGUAGES

LUDO OP DE BEECK, CHAIRMAN; JOSEPH B. SPIEKER, DIRECTOR OF GRADUATE STUDIES; CARRANZA, GUARDIOLA, ISAR, MENDIZABAL, SHIELDS.

The Spanish Division of the Department of Romance and Classical Languages offers programs of study leading to either the Master of Arts or the Master of Education degree in Spanish Language and Literature. The M.A. degree is recommended to those who plan to pursue studies towards the Ph.D. degree. The M.Ed. degree in Spanish is designed especially for those who plan a career as secondary school teachers or those already employed as teachers in a school system. Geared to both full and part-time students, since its inception in 1966, the program has served more than 100 graduate students.

REQUIREMENTS FOR THE MASTER OF ARTS DEGREE IN SPANISH LANGUAGE AND LITERATURE

Candidates for the M.A. degree in Spanish must present a research paper (GD 550; 2 or 4 s.h.) and successfully complete a minimum of 30 semester hours of which at least 24 s.h. are to represent the area of concentration (Spanish) as well as a minimum of 4 different literary epochs chosen from courses in Peninsular and/or Spanish American Literature. Required courses for the M.A. degree are: SP 500 or SP 501 and SP 506. For admission to degree candidacy the student must demonstrate a

reading knowledge of a second foreign language acceptable to the department.

REQUIREMENTS FOR THE MASTER OF EDUCATION DEGREE IN SPANISH LANGUAGE AND LITERATURE

Candidates for the M.Ed. degree in Spanish are required to present a research paper or project (GD 550; 2 or 4 s.h.) and successfully complete 30 semester hours with distribution as follows: A minimum of 21 s.h. in Spanish area studies which must represent courses chosen from at least three (3) different literary epochs in Peninsular and/or Spanish American Literatures. Two (2) courses (4 s.h.) in Foundations of Education (2 s.h. each) are to be selected from among: FE 511-515 or SP 505; and at least one course to be selected from: EP 573 or LR 500.

Required courses in Spanish are: SP 500 **or** SP 501 and SP 506. (All are 3 s.h. courses.) For admission to degree candidacy the student must demonstrate a satisfactory reading knowledge of a second foreign language acceptable to the department.

CURRICULUM FOR THE M.A. AND M.ED. DEGREES IN SPANISH LANGUAGE AND LITERATURE

I. Spanish Language and Literature (Area of Concentration)
Courses SP 500 through SP 599 provide subject matter content in the area of specialization for both the Master of Arts and the Master of Education degrees. M.A. candidates are to complete 24 to 30 s.h. and M.Ed. candidates a minimum of 21 s.h. chosen from these courses some of which represent required courses. FL 525 Valladolid Program for which 6 graduate s.h. credit will be allotted is optional provided that the candidate has not elected the Valladolid program as an undergraduate.

II. Related Studies
A limited number of s.h. graduate credit may be elected from related areas of study with departmental approval.

COURSE DESCRIPTIONS

FL 521 LANGUAGE AND SOCIETY 2 s.h.
Salient facts of language and its fundamental role in development and continuity of society and culture, including language families and their characteristics, factors of linguistic change and development, reciprocal influences of culture and language, linguistic borrowing, psycholinguistics, and systems of writing. (Open to majors and non-majors.)

FL 525 FOREIGN STUDY – VALLADOLID (Optional) 6 s.h.
Intensive study of Spanish language and culture at the University of Valladolid, Spain, from approximately February 1 to July 1. For detailed description consult the IUP publication "The Pennsylvania–Valladolid Study in Spain Program.

HISPANIC GRADUATE STUDIES

Series 500–599: Philology, Stylistics, Grammar and Methodology

SP 500 HISTORY OF THE SPANISH LANGUAGE 3 s.h.
Traces phonological, morphological, lexical and syntactical evolution of Castilian dialect from its origins in Vulgar Latin through its development, perfection and ultimate recognition as the official language of Spain and Spanish America. Places Castilian linguistically with relation to other Romance Languages and considers features peculiar to Spanish of Latin America.

SP 501 ADVANCED GRAMMAR, COMPOSITION AND CONVERSATION 3 s.h.
Advanced grammar, composition and oral fluency intended to substantially improve understanding of Spanish grammar and syntax, increase vocabulary and command of language, and to provide opportunity for acquisition of poise and ease of self-expression.

SP 505 METHODOLOGY OF FOREIGN LANGUAGE TEACHING 3 s.h.
Improvement of teaching skills and an increased understanding and awareness of implications of current research to foreign language teaching and learning theory as well as development of strategies for testing and evaluation of student learning and exploration of curricular innovations.

SP 506 METHODS OF RESEARCH, CRITICISM, AND STYLISTICS 3 s.h.
Acquaints students with tools of research in the field: MLA style sheet, histories of literature, historical grammars, dictionaries, literary criticisms, recognized collections of literary texts, critical editions and monograph studies as well as various scholarly journals devoted to romance philology and literatures. Introduction to history of Spanish literary criticism and to stylistics as a tool of literary analysis applied to representative works of various epoch styles.

Spanish Peninsular Literature

Series 510 – 549

SP 510 MEDIEVAL SPANISH LITERATURE 3 s.h.
Reading and discussion of various medieval genres: epic poetry (juglaría and clerecía); lyric and didactic poetry; prose (Alfonso X and selections from the *Crónica general,* the *Partidas,* the *Cantigas,* etc.; Juan Manuel and the apologue); *Danza general de la Muerte,* the debate and the medieval drama.

SP 515 PROTO-RENAISSANCE AND TWO SPANISH MASTERPIECES 3 s.h.
Critical appreciation of transitional literary forms of XV century Spain: poetry and the Cancioneros and the Romancero; prose (history, biography and satiric-didactic literature, apologues). Special emphasis on *Libro de buen amor* and *La Celestina.*

SP 520 RENAISSANCE AND HUMANISM 3 s.h.
Consideration of cultural contributions of Spanish Christian Humanism together with a careful study of Renaissance lyric poetry (Italianate and traditional veins): the epic; the novel (in its various forms); Pre-Lopesque theater; the dialogue; ascetic and mystical prose and poetry; history.

SP 525 THE SPANISH BAROQUE 3 s.h.
An insight into typical Baroque themes, motifs and stylistic devices through analysis and interpretation of important works of XVII century authors. Poetry (lyric and epic): prose (novel and novella); literary criticism and polemics; drama.

SP 526 CERVANTES 3 s.h.
A study and appreciation of works of Cervantes (poetry, drama, novels and short novels) with special attention accorded to *Quijote.*

SP 527 GOLDEN AGE DRAMA 3 s.h.
Readings and interpretations of major dramatists (Lope and Calderón) and examination of XVII century drama, its peculiar national character, and its relationship to contemporary society and culture.

SP 530 NEOCLASSICISM AND ROMANTICISM 3 s.h.
Compares and contrasts cultural and ideological expression of XVIII century Spain – both French cultural influence and popular reaction to

the trend — as manifested in the prose (polemic, erudite, narrative and philosophic), poetry and theater of the period to artist and literary aesthetics of the first half of XIX century Spain as reflected in poetry, novel, drama and literary preceptive of her imported Romanticism together with an appreciation of the late romantic Bécquer.

SP 535 COSTUMBRISM, REALISM AND NATURALISM 3 s.h.
Studies and analysis of Articulos de costumbres and especially several trends in the novel of latter half of the XIX century in Spain. (Fernán Caballero, Alarcón, Valera, Pereda, Palacio Valdés, Pardo Bazán, Blasco Ibánez, Clarín and Pérez Galdós).

SP 536 PÉREZ GALDÓS 3 s.h.
Analysis of spiritual orientation (Christian existentialism), thought, style and narrative technique of the author, notably in his *Novelas contemporáneas.*

SP 540 GENERATION OF 1898 3 s.h.
A critical excursion into minds of the late XIX and early XX century novelists and thinkers and their works. Emphasis on novels and essays of Unamuno, Ganivet, Azorín, Baroja, Valle-Inclán, Ortega y Gasset and Pérez de Ayala.

SP 541 MODERNISM, CONTEMPORARY AND POST-CONTEMPORARY POETRY 3 s.h.
Study and analysis of lyric poetry in Spain from Modernism and its evolution to present.

SP 545 THE SPANISH NOVEL OF THE XX CENTURY 3 s.h.
Trends of Spanish Novel after Civil War: A) 1940—1961: *Tremendismo* and testimonial novel; Social Realism and Objectivism. B) 1962 to present: reaction against Social Realism and Objectivism; new tendencies. C) short story.

SP 546 THE SPANISH XX CENTURY THEATER 3 s.h.
Study and interpretation of Spanish Theater from Generation of 1898 to present.

Spanish American Literature and Culture

Series 550 — 589

SP 550 PRE-COLUMBIAN LITERATURE AND SPANISH AMERICAN CIVILIZATION 3 s.h.
Literature, art, myth and thought of Indian civilizations of Latin America with emphasis on Aztecs, Mayas and Incas as well as history and culture of Spanish America, Spanish American character, traditions and ideology from its origins to the present.

SP 555 COLONIAL PERIOD 3 s.h.
Representative chroniclers, poets and dramatists from the letters of Columbus to end of the XVI century together with a study of various literary genres during the XVII and XVIII centuries in Spanish America with special emphasis on Baroque and Neoclassical trends.

SP 560 ROMANTICISM 3 s.h.
A detailed study of the Romantic period, its European influences and unique characteristics of Romanticism in Spanish America with representative poets, novelists and essayists read against the XIX century historical background.

SP 561 GAUCHESQUE LITERATURE 3 s.h.
Development of gauchesque genre in Argentina and its characteristics, interrelated with the geographical, historical and social background with emphasis on gauchesque poetry.

SP 565 MODERNISM 3 s.h.
Modernistic movement of Spanish American literature history, and its relation to certain European artistic trends and movements. Aesthetic principles of modernism together with its renovation in themes, vocabulary, syntax and versification will be seen as reflected in the criticism and works of the movement's outstanding authors.

SP 570 POST-MODERNISM & AVANTE-GARDE POETRY 3 s.h.
A study of the reaction against modernism as characterized by new tendencies of post modernistic poetry, followed by an analysis of historical and socio-cultural situation of "avant-garde" movements. Discussion of characteristics of works of major Spanish American "avant-garde" poets.

SP 575 REGIONALISTIC NOVEL 3 s.h.
A study of the "maestros" of Spanish American regionalism of the early XX century, including novelists, Gallegos, Rivera, Azuela, Güiraldes, Icaza, Alegría, etc.

SP 580 XX CENTURY SPANISH AMERICAN LITERATURE 3 s.h.
Literary expressions in Spanish America from end of the XIX century to present.

SP 585 CONTEMPORARY NOVEL AND SHORT STORY 3 s.h.
Major contemporary novelists and short-story writers (Borges, Onetti, Cortázar, Carpentier, Rulfo, García Márquez, etc.), with an examination of their major themes, techniques and stylistic features.

SP 586 THE SPANISH AMERICAN ESSAY 3 s.h.
Development of literary and ideological essay from the last two decades of the XIX century to present with stress on contemporary period. Essays will be read both as a literary genre and as a vehicle of ideas against the historical background.

Series 590 – 599

SP 599 SPECIAL TOPICS 3 s.h.
Study of an author, genre, epoch or literary movement.

SCIENCE

CHARLES R. FUGET, ASSOCIATE DEAN, DIVISION OF NATURAL SCIENCE AND MATHEMATICS

This degree is designed for teachers who are teaching General Science, for those who teach more than one science subject, and for those who have a deficiency in one or another of the fields of science. It may be to their advantage to be able to select courses from a variety of fields. The Master of Education degree with a major in Science should enable such teachers to upgrade their teaching by selecting suitable courses from the electives in the various fields listed under the Biology, Chemistry, Geoscience, and Physics headings. Students should study the prerequisites carefully to make sure they have the background for the courses they wish to take.

CURRICULUM FOR MASTER OF EDUCATION DEGREE IN SCIENCE

In order for a student to major in Science, he must have completed one year of undergraduate work in Biology, Chemistry, and Physics.

Students working for this degree with a major in Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration Area – 14-22 semester hours of work in subject matter content is to be selected from the various courses in the major areas of Biology, Chemistry,

Geoscience and Physics with the approval of the candidate's advisor.

II. Professional Studies – 4-10 semester hours of work, including Independent Study – Thesis to be selected from the following: GD 516, LR 500, GD 550, SE 531 or EP 580.

III. Foundations of Education – 2 semester hours of work to be selected from the following courses: FE 511-515.

IV. Research Techniques – the following course is required. It should be scheduled early in the student's program: GD 515.

In certain courses in the science department, additional lab time may be required beyond the regularly scheduled periods. Students who select a four-credit sequence are required to complete the sequence.

COURSE DESCRIPTIONS

SC 572 EXPERIMENTAL TECHNIQUES IN CHEMISTRY AND PHYSICS 3 s.h.
Experimentation, observation, and application of scientific concepts. Classroom and lecture demonstrations will be prepared, presented, and evaluated by students and instructor. Special attention to development of new ideas and new ways of presenting scientific principles. Prerequisites: Chemistry I, II, Physics I, II. (Bordas)

SC 573-574 COMPUTATIONS IN PHYSICS & CHEMISTRY 4 s.h.
Designed to help the teacher of physics and chemistry, who has a limited background in mathematics, to become more skillful in solution of problems usually encountered in physics and chemistry courses. It should also provide him with a more adequate background to deal with problems in his courses in graduate program. (Mathematics Staff)

SC 575 THE GROWTH OF SCIENCE & ITS CONCEPTS I 3 s.h.
Traces development of science concepts like time, matter and motion in astronomy, biology, chemistry, geology and physics and their interaction with the growing society of Western Civilization from earliest beginnings to time of Newton. Treatment of these concepts will be essentially non-mathematical.

SC 576 THE GROWTH OF SCIENCE & ITS CONCEPTS II 3 s.h.
Influence and development of concepts like time, matter and motion on science and Western Civilization are studied from Newton to present time with emphasis on the ideas of relativity and quantum theory. Stress on non-mathematical understanding of basic ideas. SC 576 may be taken without having had SC 575, if the student secures the permission of the instructor.

BI 568 BIOLOGY PRACTICUM 2 s.h.
Preparation of culture media and solutions for high school biology teacher. Problems and techniques unique to biological sciences in demonstration material, handling and housing of plants and animals, safety in lab and in the field, and maintenance of equipment will be discussed. Theoretical and practical work with development of ongoing experiments and research projects. Handbooks and other resource materials useful in "lab approach" to biology.

SCIENCE FOR THE ELEMENTARY SCHOOL TEACHER

FRANCIS W. LIEGEY, CHAIRMAN; ROBERT N. MOORE, DIRECTOR; CONWAY, COSTA, FERRENCE, GRANATA, HUE, KING, KUHNS, MERRITT, MILLWARD, MOORE, PARK, PRINCE, RIBAN, SCHROCK, STAPLETON, SUTTON, WAECHTER, WOLFE.

The program leading to a Master of Education Degree in Elementary Science is designed to give elementary teachers depth and competency in the content areas of the physical and biological sciences. The assemblage of courses cited below should prepare the student for work as an Elementary Science resource person within his school or school district. Except for BI 500, GS 502, and GS 561 all of these courses are not open to majors in Biology, Chemistry, or Physics.

Following admission to the graduate school, each candidate is expected to appear before the Elementary Science Committee. At this meeting the candidate will be assigned to an advisor who will assist the student in planning the program of study deemed most appropriate for his professional growth. This advisor may also assist the student in selecting, preparing, and presenting his thesis or research project.

CURRICULUM FOR MASTER OF EDUCATION DEGREE

This program is not intended for certification in science at the secondary level. It is designed to provide the elementary teacher with an opportunity to increase his ability to teach science at the elementary level. Students working for this degree with a major in Elementary Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration Area – fifteen to twenty-two (15-22) semester hours of work in subject matter content are to be selected from the following courses except that a more advanced course may be required by the advisor if the background of the student warrants: ES 510-511, ES 530, ES 540, ES 550, ES 560, ES 564, ES 566, ES 568, ES 569, ES 574, ES 580, ES 588, ES 592*, GS 502, GS 561, MA 521 or BI 500.

*Accepted toward professional studies requirement.

II. Professional Studies – A maximum of 6 semester hours may be selected in this area with approval of advisor.

III. Foundations of Education – Two (2) semester hours of work to be selected from the following: FE 511-515.

IV. Research Requirements – Students are required to take GD 515 and a minimum of 2 credits Thesis (GD 550).

COURSE DESCRIPTIONS

EL 510-511 EDUCATION IN THE OUT-OF-DOORS 6 s.h.
Designed to teach elementary teacher to coordinate all elementary subjects into lessons taught out-of-doors that cannot ordinarily be taught in the classroom. Six (6) hours of lab. (Summers only) (Hue, Kuhns, Millward)

EL 530 QUANTITATIVE TOOLS FOR EL. SCIENCE 3 s.h.

Proficiency in quantitative aspects of science. Emphasis on practical problem solving related to typical lab data. Instruments, instrument calibration, graphing, and graph interpretation (interpolation and extrapolation). Area under the curve idea and meaning of slope on a graph will be explored extensively. Concentrated instruction in use of slide rule, use of logarithms and significant figures as tools to achieve above objectives. (Wolfe)

EL 540 CHEMISTRY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

Principles of chemistry through lab and/or field-centered experiences relevant to teaching chemistry in elementary school. Recommended for all elementary education majors. (Costa or Zambotti)

EL 550 PHYSICS IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

Development of basic concepts in physics on a quantitatively plausible basis appropriate for elementary science. Lab work is designed to develop an understanding of force, work, and energy, and conservation of energy in mechanical thermal and electrical systems. Operational definitions and formulation and use of physical models. (Riban)

EL 560 BOTANY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

Introduction to anatomy and life processes of plant cells, tissues, and organs. Consideration to selected algae, bacteria, fungi, mosses, ferns and their allies and seed plants. Recognition of groups of local plants, their economic importance and health implications are emphasized. Lab studies will include practical uses of plants. (Schrock)

EL 564 ZOOLOGY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

A lab and field study course which surveys principles and theory of zoological taxonomy and study of representative invertebrate and vertebrate taxa. Emphasis on freshwater and terrestrial forms which may be observed or collected in Western Pennsylvania. Homologous structures are compared and their functions are studied. Principles of embryology, genetics and animal behavior are introduced. (Stapleton or Merritt)

EL 566 CONSERVATION IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

A new concept in conservation-corrective and preventive conservation for man's survival. Problems of pollution and population are central theme. Field work is required. (Ferrence or Hue)

EL 568-569 FIELD BIOLOGY I AND II IN ELEMENTARY SCIENCE EDUCATION 6 s.h.

EL 568 FIELD BIOLOGY I

A lab course on biological environment. Included will be recognition of regional vegetation formations and typical animals associated with these formations. Identification and collections will be made. No prerequisites. (Summers only)

EL 569 FIELD BIOLOGY II

Ecology of Southwestern Pennsylvania counties. Attention toward interrelationships of plant, animal, and human populations. Field techniques including population analysis and measurements of effects of industrial activities will receive particular attention. No prerequisites. (Summers only) (Merritt, Stapleton, Waechter)

EL 574 METEOROLOGY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.

A descriptive analysis of fundamentals of weather, including: composition and structure of atmosphere, radiation, heat budget, cloud and rain physics, circulation patterns, storm structures, air pollution, and biometeorology. Familiarization with weather instruments, maps and records, as well as activities applicable to elementary science. (Prince)

EL 580 ASTRONOMY IN ELEMENTARY SCIENCE EDUCATION 3 s.h.
A descriptive and qualitative study of stellar and solar system astronomy including telescopes and space travel at a level adaptable to the elementary school classroom and techniques for their presentation. Three (3) hours lecture and/or lab. (Sutton)

EL 588 FIELD NATURAL HISTORY OF WESTERN PA. 3 s.h.
Bus and automobile travel throughout Western Pennsylvania. Places of interest in ecology, geology, conservation, and nature study will be visited. Offered in pre- or post-session only. Travel may require the student be away from campus for several days at a time. A travel assessment based upon needs will be made. (Ferrence)

EL 592 ELEMENTARY SCIENCE CURRICULUM 3 s.h.
Various approaches to teaching of elementary science and bases for these approaches. New curricula being used in elementary schools will be examined and critiqued. (Ferrence or Moore)

GS 502 PRINCIPLES OF GEOLOGY 3 s.h.
See course description under Geoscience. (Park)

GS 561 OCEANOGRAPHY I 3 s.h.
See course description under Geoscience. (Prince)

SOCIAL SCIENCE

RAYMOND L. LEE

Master of Education in Social Science

The Master of Education Degree in Social Science is designed to give secondary teachers greater depth and competency in the subject matter, methodology and research techniques of the social sciences.

Each student admitted to the Graduate School will be assigned to an advisor in the Social Science Division. All courses must be approved by that advisor.

Students working for this degree will complete a minimum of 30 semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration (14-22 s.h.)
Courses must be elected in three of five Social Sciences (Economics, Geography, History, Political Science, Sociology-Anthropology). See course listings elsewhere in this catalog.

II. Professional Studies (6-12 s.h.) from: EP 578, EP 504, EP 573, FE 511 to 515; or SS 510.

III. Research (6-8 s.h.). Students must program a methods course SS 514 or GD 515 early in their graduate work. This is followed by a seminar in which all theses (GD 550) are initiated.

Master of Arts in Social Science

This degree is designed to prepare instructors for community

college teaching. It emphasizes preparation in two of the seven Social Sciences (Criminology, Economics, History, Geography, Political Science, Psychology, Sociology-Anthropology) in a major-minor arrangement. Students program a seminar in each of these fields that stresses the organization, focus, teaching techniques and materials of the discipline in general education. For a list of departments currently participating in the program, consult the Associate Dean.

I. Subject Matter (20-22 s.h.)
   1. Major Field (12-14 s.h.)
   2. Minor Field (8-10 s.h.)

II. Professional Courses (4 s.h.)
   1. Teaching Seminar: Major Field (2 s.h.)
   2. Teaching Seminar: Minor Field (2 s.h.)

III. Research Requirement (4-6 s.h.)
   1. Elements of Research or Research Methodologies in Social Science (2 s.h.)
   2. Seminar – Major Field (2 s.h.)
   3. Thesis (2-4 s.h.)

COURSE DESCRIPTIONS

SS 510 NEW APPROACHES IN SOCIAL SCIENCE INSTRUCTION 2 s.h.
Selected new and innovative curriculum projects and materials beginning with an analysis of recent research in the behavioral sciences and history. Some emphasis on strategies for use of such materials in the classroom.

SS 511 SOCIAL SCIENCE SEMINAR 2 s.h.
Research in methodology of social science in the secondary schools. Restricted to M.Ed. candidates. Prerequisite: GD 515 or SS 514.

SS 514 RESEARCH METHODOLOGIES IN THE SOCIAL SCIENCE 2 s.h.
Selection of a research topic, techniques of locating and using source materials, evaluation of evidence, organization of tested data, and exposition of tested data according to approved forms. Methodologies of value of students of politics, economics, or sociology, in additon to those techniques usually treated in historiography.

SS 521 CONTEMPORARY AMERICAN ISSUES 2 s.h.
Conducted in seminar fashion, centering its attention on one or two major contemporary American issues. Open only to non-majors in the social sciences.

SS 561 SOCIAL POLICY STUDIES 2 s.h.
Focusing on several key issues on American social scene, the class will examine genesis of each problem, present conflict of values inherent in the problem, alternative proposals for its solution and the social consequences. Open only to non-majors in the social sciences.

SS 598-599 SOCIAL SCIENCE FOREIGN STUDY 2-6 s.h.
Directed foreign study that involves travel and observation outside the United States. Areas visited and itineraries vary from year to year. Background reading, lectures and briefings, diary or evaluative paper. In recent years Argentina, India, the Soviet Union and countries of Western Europe have been tour destinations. For details on projected tours direct inquiries to Director, Center for International Studies.

SOCIOLOGY

D. M. AZIMI, CHAIRMAN; CHANCY R. RAWLEIGH, DIRECTOR OF GRADUATE STUDIES; KRAUS, LANHAM, NEWHILL, OLIN-FAHLE, VEXLER.

The Masters of Arts in Sociology is designed to serve two basic orientations: a) preparing for professional careers in academic organizations, such as community college teaching and governmental and social agencies, and/or research; as well as a scholarly foundation for those students who are interested in continuing their studies into a doctoral program; b) a professional commitment to community service and social agencies. This orientation recognizes that mature students can apply sociological theory and research findings to community organizations through their daily interactions, making major contributions to the community and human life. The M.A. in Sociology is also geared to benefit students who have an interest in government administration, urban planning, social welfare agencies, and other human services.

In addition to graduate school admission requirements, the student must have completed at least 12 hours of undergraduate Sociology courses with an average grade of B or better. In individual cases the department may allow a promising student to enter the program with deficiencies; however, such deficiencies must be made up by taking one or more of the departmental readings courses or other specified courses at the discretion of the department in addition to the required total number of course hours.

Degree Requirements

All Master of Arts degree candidates are required to take the basic core requirements: SO 576, SO 592*, and SO 593.

*Master of Arts in Social Science and Master of Science in Education students may substitute either SO 564 or GD 515.

Students preparing for doctorates are advised to take the first area of concentration, and those students preparing for Sociology related professions are encouraged to follow the second area of concentration.

Areas of Concentrations:

I. Students preparing for doctorate. In addition to the core requirements, at least one course must be selected from each of the following four major areas:
   a) Social Institutions – SO 560, SO 572, SO 590*, and SO 591*.
   b) Social Problems – SO 557, SO 559, SO 562, SO 563, SO 565, SO 566, SO 590*, and SO 591*.
   c) Social Change – SO 560, SO 569, SO 590* and SO 591*.
   d) Social Policies – SO 557, SO 559, SO 563, SO 565, SO 590*, SO 591*.

   and six hours of electives within concentration and GD 550 (4-6 s.h.).

   *SO 590 and SO 591 are accepted in the specific major areas when either the topic or focus of the individual instructor directly relates to the area involved. For example, Social Institutions may include family, medicine, religion,

political; special problems may include drug culture, alcoholism, battered children, marginal man, social self identity; social change may include rural-nonfarm communities emerging societies, social forces of change; and social policies may include either ethical imperatives, cultural values, helping relations, modern values affecting marital patterns.

II. Preparation for Sociology related professions: administrative, community, community organization, and social welfare agencies. This program requires 36 graduate credits with the courses and practicum being selected in mutual consultation between student and advisor within the following guidelines: In addition to the core requirements: (3-6 s.h.) in sociology and related electives and GD 550 (3 s.h.).

COURSE DESCRIPTIONS

SO 551 SYMPOSIUM OF SOCIOLOGICAL PRINCIPLES 3 s.h.
General overview of sociological principles regarding intergroup relationships and social system processes directed to students who fail to have at least a sociological minor equivalent at undergraduate level.

SO 557 SOCIAL PROCESSES OF AGING 3 s.h.
An introduction to problems of the aged and of aging past the middle life. Covered first is the aging individual and later the interrelation of this individual with family, community, and special settings, within framework of the limited welfare state.

SO 559 SOCIAL SERVICES 3 s.h.
To explore a specific aspect of social services ranging from aging to youth services with student choosing the area of exploration.

SO 560 SOCIOLOGY OF POWER 3 s.h.
Social power dimension of social strata and class with particular emphasis on lower or "underprivileged" strata. Employs, where possible, a cross-cultural approach for comparisons of U.S. with developing societies.

SO 562 DEVIANT BEHAVIOR 3 s.h.
Social-individual analysis of deviant behavior. Effect of social conditions and cultural values is emphasized.

SO 563 INTERGROUP RELATIONS 3 s.h.
Intergroup tensions and conflicts with emphasis on techniques of social action designed to reduce conflict.

SO 564 RESEARCH SEMINAR IN SOCIOLOGY 3 s.h.
Area research considering various facets of a central problem both from the research and theoretical view points.

SO 565 ADOLESCENT IN AMERICAN SOCIETY 3 s.h.
Students will prepare papers on topics such as delinquency or peer-group relationships.

SO 566 THE SOCIOLOGY OF SMALL GROUPS 3 s.h.
Interrelation between the individual and groups such as home, school, neighborhood, work, community, etc., and dynamics and development of groups as well as interactional and behavioral processes.

SO 567 RECENT SOCIAL THEORIES 3 s.h.
Review of basic and advanced concepts in sociology with emphasis on modern theoretical and substantive contributions to the field. Include majors in sociology.

SO 572 SOCIOLOGY OF LAW 3 s.h.
Sociological analysis of law and legal institutions. Prerequisites: 9 graduate credits.

SO 590 READINGS IN SOCIOLOGY 3 s.h.
Students report and develop extensive bibliographies on assigned readings for a depth understanding of a specific sociological concept, process, or problem.

SO 591 SPECIAL TOPICS SEMINAR IN SOCIOLOGY 3-6 s.h.
Seminar focuses on particular substantive areas. Students will do extensive reading according to topics selected by instructor.

SO 592 METHODS AND FIELDWORK PRACTICES 3 s.h.
An examination of latest methodological and fieldwork procedures in sociology. Students will be expected to develop reasonable project outlines. Required for M.A. majors in Sociology.

In addition to the above courses, students can take GD 540 if they wish to do Independent Study in Sociology.

Note: Anthropology graduate courses listed in Social Science program:

AN 591	STUDIES IN ANTHROPOLOGY	3 s.h.
AN 592	COMPARATIVE CULTURES	3 s.h.
AN 593	THE SCIENCE OF CULTURE	3 s.h.
AN 594	ANTHROPOLOGY SEMINAR	3 s.h.
AN 595	PRE HISTORY	3 s.h.

SPECIAL EDUCATION AND CLINICAL SERVICES

EUGENE F. SCANLON, CHAIRMAN; BAHN, BORMANN, BRUNGARD, CHAPMAN, FELIX, FIDDLER, FLAMM, GEISEL, MEASE, MORRIS, REID, YAGEL.

The graduate program offers students a major option in one of the following areas of concentration: (1) Mentally Retarded: (2) Emotionally Disturbed: (3) Learning Disabilities: (4) Exceptionality: (5) Speech Pathology. Each of the first 4 concentration areas lead to a Master of Education degree. (5) leads to a Master of Education or Master of Science degree in Speech Pathology. A graduate level of competency in these areas is in accord with national standards now emphasized by professional organizations such as the Council for Exceptional Children and the American Speech and Hearing Association.

CURRICULUM FOR THE MASTER OF EDUCATION DEGREE

A minimum of 30 semester hours is required for the Master of Education degree. Candidates with teaching certification in fields other than Special Education will be required to complete additional semester hours depending on individual background.

Group I. Subject Matter Concentration – Select 15-21 s.h. in one option. Three options of Subject Matter Concentration are offered, each leading to the Master of Education Degree; (1) Mentally Retarded; (2) Emotionally Disburbed; (3) Learning Disabilities.

MENTALLY RETARDED:

Admission of majors in this area of concentration assumes that the student has basic teaching certification in this field, or is working toward such certification. A student with a deficiency may be admitted provisionally with the understanding that deficiencies will be made up. Upon successful completion of the courses required to remove the deficiency the student will be accepted to full graduate status.

Select 15-21 semester hours with advisor's approval: *SE 539, *SE 523, **SE 531, SE 522, SE 530, SE 532, *SE 540, SE 541, SE 545, *SE 555, *SE 560, SE 565.

*Required courses for Mentally Retarded

**Required courses for students without prior course in exceptionality

EMOTIONALLY DISTURBED:

A prerequisite for admission to the M.Ed. program in this concentration area is basic teaching certification. It is assumed that course work in the basic skill subjects of teaching reading and arithmetic are included in the student's background. Work in human growth and development and in mental health are also considered fundamental. The student will select 15-21 s.h. in Group I. Required courses in this area are SE 565, SE 555, SE 540, SE 560. Recommended courses in this area are EP 532, SE 531, PC 534.

LEARNING DISABILITIES:

A prerequisite for admission to the M.Ed. program in this concentration area is basic teaching certification. It is assumed that course work in the basic skill subjects of teaching reading and teaching arithmetic are included in the student's background. Work in human growth and development and in mental health are also considered fundamental. The student will select 15-21 s.h. in Group 1. Required courses in this area are SE 566, SE 540, SE 555, SE 560. Recommended courses are EL 501, EP 521, SE 530, EL 504, SH 530.

Group II. Professional Studies and Electives. Select 3-9 s.h. according to major subject matter concentration. To be selected in consultation with the student's major advisor.

Group III. Foundations of Education. Select 2 s.h. from FE 511-FE 515.

Group IV. Research. Select 4-6 s.h. from GD 515 and GD 550.

CURRICULUM FOR MASTER OF SCIENCE DEGREE IN EXCEPTIONALITY

Professional training is provided for those who wish to gain competencies for working with the mentally and physically handicapped in non-teaching situations. Advisor recommendation should be obtained prior to enrollment. Course selection is based on individual background and employment goals. Candidates must select a minimum of 30 graduate semester hours.

Group I Subject Matter Concentration

A. Course Concentration (15-21 s.h.): SE 522, 530, 531, 532, 539, 545, 560.

B. Practicum (6 s.h.): SE 550

Group II Interdisciplinary Study (3-6 s.h.): GD 516.

Group III Research (4-6 s.h.): GD 515 and GD 550.

SPEECH PATHOLOGY:

The Speech Pathology major leads to a Master of Education or a Master of Science Degree. A minimum of 30 semester hours is required. The Master of Education Degree allows for flexibility in programming and a wider selection outside the Subject Matter Concentration whereas the Master of Science Degree is based upon an individual program equating the national standards established for attainment of a Certificate of Clinical Competence. Those students who have not completed at least 18 semester hours normally included in an undergraduate major in the area may be provisionally admitted and upon completion of the deficiencies may apply for full graduate status. Each student will be assigned an advisor whose signature will be required for initial registration.

1. Courses SH 550 through SH 663 will provide the content studies for programs in both the Master of Education and Master of Science degrees (see Course Descriptions pages 129–130). M.Ed. candidates will choose 14 to 18 hours from these courses; M.S. candidates will choose 21. Practicum courses are required for the M.S. candidate.

A. Basic Communication Area: SH 502, SH 550.

B. Professional Concentration: SH 504, 510, 512, 514, 516, 518, 530, 532, 535, 540.

C. Practicum (maximum of 6 s.h.): SH 561 and 663.

All candidates will select 3-8 semester hours from the Course Offerings of the following departments: Art, Counselor Education, Educational Psychology, Elementary Education, English, Foundations of Education, Learning Resources and Mass Media, Psychology, Reading, Sociology-Anthropology, Special Education.

M.Ed. candidates will select 2 semester hours in Foundations of Education.

All candidates will complete 4-6 credits in Research: GD 515 and 550.

COURSE DESCRIPTIONS

SPECIAL EDUCATION

SE 522 ORIENTATION TO REHABILITATION 3 s.h.

Principles and practices in rehabilitation, with attention to contributions of teachers, counselors, nurses, social workers, psychologists, speech therapists, and other professional workers.

SE 523 CURRICULUM AND METHODS 3 s.h.

Designed to provide an in-depth understanding of current curriculum levels for all retarded students. Curriculum guides are evaluated and analyzed in relation to present and future programs. Some consideration to subject matter at elementary and secondary levels, relationship between academic subjects and vocational skills; emphasis on clinical and diagnostic approach in curriculum design.

SE 524 PRINCIPLES AND PRACTICES IN SPEECH IMPROVEMENT 2 s.h.

Study of the normal development of speech, classroom methods in speech improvement, and special consideration for children handicapped in speech or hearing. Library research, project work, demonstrations and experimentation will be heavily stressed.

SE 530 ORGANIZATION AND ADMINISTRATION OF PROGRAMS FOR EXCEPTIONAL CHILDREN 3 s.h.

Principles, practices, and problems of administration and supervision as they relate to developing and maintaining special education programs. Criteria are analyzed for use in evaluation of local programs. Functions of administrators and supervisors in school systems are compared according to rural, urban, or state-wide responsibilities. Prerequisite: SE 520, 521, 540. (Required for administrators and supervisors.)

SE 531 PSYCHOLOGY OF THE EXCEPTIONAL CHILD 3 s.h.

Designed to aid the student in meeting needs of those children who deviate from the typical in areas of physical, mental, emotional, and educational developments. Consideration to methods of instruction and curricular material.

SE 532 GUIDANCE AND ADJUSTMENT 3 s.h.

Home, school, and community influences are analyzed in family adjustment to the presence of an exceptional child. Family reactions are considered in behavioral differences among children with various degrees of exceptionabilities. Emphasis to guidance skills and knowledges needed by teachers and other professional workers in field of exceptionability.

SE 538 PSYCHOLOGY OF THE GIFTED CHILD 3 s.h.

Characteristics of the bright, fast-learning child along with implications for education. Emphasis to measurement techniques, motivational factors, and personality dynamics.

SE 539 PSYCHOLOGY OF THE MENTALLY RETARDED 3 s.h.

Characteristics of the slow-learner and of the non-educable child along with implications for education. Emphasis to measurement techniques, motivational factors and personality dynamics.

SE 540 DIAGNOSTIC TECHNIQUES IN SPECIAL EDUCATION 3 s.h.

Diagnostic procedures and appropriate test materials are selected for use in assessment of pupils with mental, physical, emotional, and learning disabilities. Observations and demonstrations, reporting and interpreting results of diagnostic procedures are integrated with remedial or developmental recommendations in individual case studies. Prerequisite: SE 531, SE 539.

SE 541 INTERPRETATION OF RESULTS OF PSYCHOLOGICAL TESTS 3 s.h.

Results of psychometric tests are analyzed and interpreted. Various standardized psychological instruments and test batteries are considered in the light of their purpose and usage. Both individual and group test results are examined.

SE 545 COMMUNITY AND AGENCY PLANNING 3 s.h.

Selected professional, governmental and community organizations are studied for their contributions to comprehensive planning toward educational, personal-social, and occupational adjustments. Social, educational, economic, and cultural aspects are analyzed.

SE 546 TEACHING THE TRAINABLE MENTALLY RETARDED 2-3 s.h.

An analysis of curriculum and program content for the trainable mentally retarded ranging from preschool age to adult ages. Directed toward students and teachers who plan to teach the trainable retarded in public schools, institutional facilities, and/or sheltered workshops.

SE 555 PRACTICUM AND INTERNSHIP 2-6 s.h.

Advanced students are offered guided practicum experiences in selected schools, residential institutions, clinics, or agencies. Internship or supervised student teaching is planned individually. Students analyze, evaluate, and report on their experiences.

SE 560 SELECTED PROBLEMS AND RESEARCH 3 s.h.
Students will review critically recent developments in the field. Opportunity is afforded for independent readings and limited research reports. A student may identify a topic for subsequent development as his thesis or research project. Prerequisites: SE 539, SE 540.

SE 565 EDUCATION OF CHILDREN WITH SOCIAL AND EMOTIONAL MALADJUSTMENTS 3 s.h.
Examines reactions of children in the schools who deviate in their emotional or social behavior. Consideration is given to children who habitually exhibit overcontrolled, undercontrolled, or immature reactions. Identification, characteristics, educational provisions, and preventive measures are emphasized.

SE 566 EDUCATION OF CHILDREN WITH LEARNING DISABILITIES 3 s.h.
Emphasizes curriculum and remedial instruction for children with special learning disabilities who exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or in arithmetic.

SPEECH PATHOLOGY

A. BASIC AREA

SH 502 LANGUAGE DEVELOPMENT 3 s.h.
Study of requisites, stages, and principles in ontogenetic development of an interpersonal communication system; language as a system of symbols for communication; structure of the English language, including phonology, syntax, and semantics with emphasis on the generative evolvement of sentences. Highlighting of neurological, social, and psychological bases of language development.

SH 550 SPEECH SCIENCE 3 s.h.
Physiologic, acoustic, and perceptual characteristics of speech, with special emphasis on speech monitoring and controls. Major lab instrumentation and research techniques in current use are described and demonstrated. Status of present knowledge is summarized and discussed.

B. SPEECH CONCENTRATION

SH 504 DIAGNOSTIC METHODS
Evaluation of tests and techniques for diagnosis of speech and language disorders; interpretation of results and planning appropriate subsequent case management. Interviewing techniques appropriate to case history taking. Writing of diagnostic and case-history reports.

SH 510 ARTICULATION 3 s.h.
Linguistic approach to articulatory process, and analysis of misarticulations as symptoms of language dysfunction; variables related to articulatory mastery; programmed, traditional, and sensory-motor methods of modifying articulatory behavior.

SH 512 CLEFT PALATE 3 s.h.
Problems associated with phenomenon of cleft lip and palate with special emphasis in areas of speech, hearing, and language. Included in course will be human embryology with specific emphasis on oral facial development; physical remediation, including both surgical and prosthetic repair; the effects of clefts on structure and function of speech and hearing mechanism; role of speech correctionist on the cleft palate team; evaluation and current remedial procedures for speech, hearing, and language problems.

SH 514 NEUROPATHOLOGIES OF SPEECH 3 s.h.
Anatomy and physiology of nervous system in common neuropathologies affecting speech and language. Investigation of symptoms and etiologies associated with deviant neural transmission and muscular contraction. Examination of diagnostic techniques employed in neuromuscular conditions resulting from palsies, progressive degenerative diseases, dysarthrias, tumors, and paralytic or paretic involvement. Emphasis on therapeutic approaches currently in use and associated psychological impact of such debilitating conditions.

SH 516 STUTTERING 3 s.h.
Nature and causes of stuttering. Emphasis on diagnoses and management. Counseling and learning theory applications as two main approaches to treatment. Consideration of the person as a stutterer. Review of pertinent and recent research topics.

SH 518 VOICE 3 s.h.
Scientific principles of voice production and modification with emphasis on physiology, pathologies, or malfunctioning which produce voice defects; relationship between disorders of voice and personality; diagnostic and therapeutic considerations for both organic and psychogenic disorders, including the laryngectomized.

SH 530 LANGUAGE DISORDERS OF CHILDREN 3 s.h.
Anatomical, physiological, psychological, neurological and environmental factors related to language delay or disordered language acquisition. An inventory of language skills and means of fostering their development or compensating for inadequacies; a holistic vs. specific approach to programs of remediation.

SH 532 APHASIA 3 s.h.
Consideration of language, speech, and related problems resulting from cerebrovascular accidents. Neurological functioning and dysfunctioning will be highlighted. Diagnosis and management of persons with aphasia, agnosias or apraxias will be emphasized. Role of family and family counseling. Aphasia in children.

SH 540 ADVANCED AUDIOLOGY 3 s.h.
Identification of types of peripheral hearing impairment by standard audiometric procedures. Pure tone audiometry: air conduction, bone conduction, masking. Speech Audiometry: speech reception threshold, speech discrimination score, tolerance level. Hearing aids: selection procedures and acoustics. Specialized diagnostic audiological tests for cochlear lesions, retrocochlear lesions, central lesions, and non-organic losses. Practical experience to develop skills in administration of standard tests, special tests, and hearing aid selection.

SH 535 SEMINAR IN COMMUNICATION 1-3 s.h.
Intensive study of one or more areas of speech science, speech and language pathology, or audiology. Topics vary to meet the students' needs and interests. Course may be repeated for credit with a change in area considered. Prerequisite: Speech Pathology major, admission to degree candidacy and advisor approval.

C. ADVANCED CLINICAL PRACTICUM

SH 561 ADVANCED CLINICAL PRACTICUM I 2-6 s.h.
Supervised practicum experience in the University Speech and Hearing Clinic with individuals exhibiting speech, language, and/or hearing dysfunction. Planning and carrying on of programs of therapy plus interviewing, diagnosing, counseling, and report writing. Two clock hours per credit.

SH 663 ADVANCED CLINICAL PRACTICUM II 2-6 s.h.
Similar to SH 561; students assume more responsibility, and experience may be done at approved off-campus sites. Two clock hours per credit.

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GERALD L. THORPE, Associate Professor — Political Science
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WARNER E. TOBIN, Professor — Director of University School
B.S., IUP; M.Ed., University of Pittsburgh; D.Ed., Penn State

HOWARD E. TOMPKINS, Professor — Chairperson, Computer Science
B.A., Swarthmore College; M.S., Ph.D., University of Pennsylvania

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A.B., Gettysburg College; M.A.T., Indiana University, Bloomington; M.Ed., Pennsylvania State University

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B.S., Bridgewater College; M.S., Ohio State University

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B.S., IUP; M.S., Ph.D., University of Chicago

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B.A., Calvin College, M.A., Bowling Green State University; Ph.D., South Dakota

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B.A., M.A., University of Pittsburgh

ROBERT J. VISLOSKY, Professor — Art
B.S., Edinboro; Ed.M., D.Ed., Pennsylvania State University

JACOB U. VOELKER, Assoc. Professor — German & Russian Languages
B.A., St. Joseph's; M.A., University of Notre Dame

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B.A., Marymount College; M.A., Fordham University; Ph.D., New York University

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B.M., Syracuse University; M.M., Indiana University

RICHARD F. WAECHTER, Professor — Biology
B.S., Bloomsburg State College; M.S., Bucknell University; D.Ed., Pennsylvania State University

DONALD A. WALKER, Professor — Chairperson, Dept. of Economics
A.B., Southwest Texas State University; M.A., University of Texas; Ph.D., Harvard

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B.A., Ohio Wesleyan University

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B.S., University of Pittsburgh; M.Ed., IUP

CALVIN E. WEBER, Associate Professor — Music
B.S., M.S., University of Pennsylvania; Ed.D., University of Illinois

CHARLES E. WEBER, Professor — Geography & Regional Planning
B.A., Montclair State College, New Jersey; M.A., Ed.D., Columbia University

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B.S., North Dakota State University; M.S., University of Montana; Ph.D., University of Pittsburgh

JAMES HERBERT WILDEBOOR, Associate Professor — Music
A.B., Ottawa University; M.M.E., University of Kansas

GEORGE T. WILEY, Professor — Chairperson, History Department
A.B., Oberlin College; M.A., Ph.D., Western Reserve University

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B.S., Edinboro State College; M.Ed., University of Pittsburgh

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B.S., Grove City College; M.A., Penn State

HALLEY O. WILLISON, JR., Associate Professor — Mathematics
B.S.Ed., Clarion State Teachers College; M.Litt., University of Pittsburgh

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B.S., University of Houston; M.A., Ph.D., University of Oklahoma

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B.S., Clarion State College; M.Ed., Duquesne University; Ed.D., University of Pittsburgh

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B.S., M.A., University of Richmond, Virginia; Ed.D., University of Virginia

JOAN R. YANUZZI, Professor — Educational Psychology
A.B., M.A., University of Michigan, Ph.D., Cornell University

HAROLD J. YOUCIS, Professor — Foundations of Education
B.M.E., Drake University; M.S., Ithaca College; Ed.D., Indiana University

DAVID L. YOUNG, Associate Professor — English
B.A., M.A., Kent State University; Ph.D., Ohio State University

MAURICE M. ZACUR, Professor — Geography & Regional Planning
B.S., IUP; M.Ed., University of Pittsburgh; D.Ed., Pennsylvania State University

GENO ZAMBOTTI, Assistant Professor — Chemistry
B.S., M.Ed., IUP

CYRIL J. ZENISEK, Professor — Biology
B.S., M.S., Ph.D., Ohio State University

DONALD N. ZIMMERMAN, Professor — Chemistry
B.S., University of Maryland; M.Ed., Pennsylvania State University; Ph.D., West Virginia University

INDEX

The Graduate School
Indiana University of Pennsylvania
Indiana, Pennsylvania 15701

APPLICATION FOR ADMISSION TO CANDIDACY FOR A MASTER'S DEGREE

Graduate Student Number _____ Social Security Number _____

Graduate Major _____

Applicant for M.A. M.Ed. M.S. Degree
(Please circle) Be accurate

Miss, Mrs., Mr. _____

Address _____
(Street)

_____
(City) (State) (Zip Code)

GRADUATE RECORD EXAMINATIONS

Scheduled _____

Aptitude Test V _____

Q _____

Advanced Test _____

My plans for completing the requirements are as follows:

I plan to take the degree at the (Spring–Summer–Winter) Graduation in _____ 19__

I have completed at Indiana _____ hours credit

I am now enrolled in _____ hours credit

Transfer credit accepted _____ hours credit

I have yet to program and complete _____ hours credit (may include a thesis)

Total Program _____ hours credit

I plan to satisfy the research requirement in the following manner:
(Complete Part 1, 2, 3 OR 4.

1. THESIS FOR CREDIT. My tentative thesis problem is _____

_____

I would like Professor _____ to serve as my research advisor or Chairman of my Thesis Committee.

2. RECITAL. My major instrument is _____. I would like Professor _____ to serve as my recital advisor.

3. ART PROJECT. I would like Professor _____ to serve as my advisor.

4. OTHER PLAN _____

This application is filed in the Graduate Office _____, 19__

(Signed) _____
Signature of Applicant

Approved by Chairman of Major Department

_____ _____
(Signature – Department Chairman) (Date)

This application has been approved by the Graduate Council _____, 19__

(Signed) _____
Dean of The Graduate School

The Graduate School
Indiana University of Pennsylvania
Indiana, Pennsylvania

RESEARCH APPROVAL FORM

Miss.
Mrs.
Mr. _____

Name | Street Address | City and State | Zip Code

When this form is returned to the Graduate Office properly completed, the Graduate Office will notify the student that the research proposal has been approved. The student should not begin the research activity until this notice is received.

SECTION I. *(To be completed by the student)*

Having been accepted as a candidate for the _____ degree at Indiana University of Pennsylvania, Indiana, Pennsylvania, I have selected as my research plan to complete the requirements for the degree:

☐ Master's Thesis (two hour – no committee) ☐ Master's Thesis (committee)

Major Field: _____ Degree: _____

Title of Study: _____

_____

_____ _____
(Signature of Student) (Date)

SECTION II. *(To be completed by the thesis committee for thesis proposals or by advisor for two hour–no committee thesis proposal)*

The thesis proposal submitted by the student named above has been approved for _____ credits. Date: _____

Advisor: _____
(only signature required for no-committee thesis)

Associate Dean for Research: _____

*Member: _____

*Member: _____

*Member: _____

SECTION III. APPROVAL OF RESEARCH
(to be completed after final conference with student)

The research project or thesis submitted by the student named above has been reviewed and accepted. Date: _____ Grade: _____

Advisor: _____

Associate Dean for Research: _____

Department Chairman: _____

*Member: _____

*Member: _____

*Member: _____

*Signature required for thesis only

The Graduate School
Indiana University of Pennsylvania
Indiana, Pennsylvania 15701

APPLICATION FOR GRADUATION

Graduate Student Number _____ Social Security Number _____

Graduate Major _____

Application for Degree of _____ (M.A., M.Ed., M.S.) Be accurate

Miss.
Mrs.
Mr. _____

Address _____
Street City State Zip Code

I expect to complete the requirements for the _____ Degree at the end of the

_____. Therefore, I wish to be considered for
(Indicate Semester or Session & Date)

the degree at the Graduation wish is scheduled for May 19__ ; Aug. 19 __ ; Dec. 19__ .

I wish to have my name entered on the diploma in the following manner:

_____
(Please print or type)

I will satisfy the research requirement for the degree by doing a:

(Check One) ☐ Thesis ☐ Art Project ☐ Recital ☐ Other

Research Approved in Proposal Form _____ (Date)

My advisor or thesis committee chairman is _____

The exact title of my final report is: _____

_____

I received _____ Undergraduate Degree from _____
(Indicate Degree) (Institution)

_____
(Address)

_____ _____
(Date) (Signature)

MAY GRADUATION – Due March 1 AUGUST GRADUATION – Due June 1

DECEMBER GRADUATION – Due Oct. 1

The Graduate School
Indiana University of Pennsylvania
Indiana, Pennsylvania 15701

REQUEST FOR CAREER SERVICE

Career Service is a service offered by Indiana University of Pennsylvania without charge. The services of Career Services are available to graduate students who receive their Master's Degree or who have been accepted as candidates for the degree in the Indiana Graduate School. A graduate student may request this service when he files an "Application for Admission to Candidacy." The first step is to complete the form below and submit it to the Graduate Office.

GRADUATE STUDENT REQUEST FOR CAREER SERVICE
Indiana University of Pennsylvania

Date _____

TO: Director of Career Services

FROM: _____
Last Name First Middle

_____
Street

_____
City State Zip Code

I hereby request the services of the Indiana University of Pennsylvania Career Services and agree to cooperate with the Bureau by submitting necessary information for its files and to promptly acknowledge all correspondence from the Service.

I received my A.B. _____; B.S. _____ Degree from _____

_____ College or University in _____ (year).

_____
Signature of Graduate Student

This part will be completed by the Graduate Office:

I certify that the above:

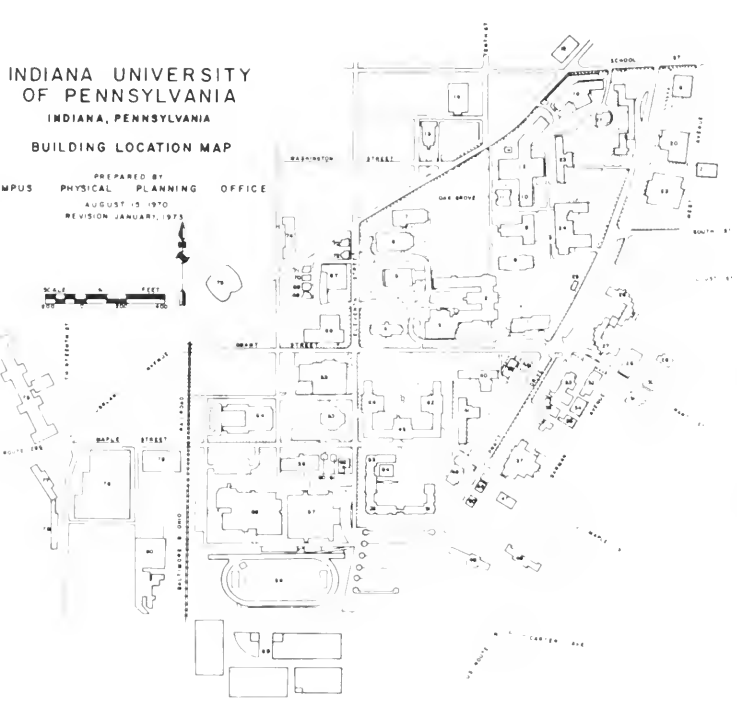
☐ has been accepted as a candidate for a Master's Degree with a major in _____ and has of this date completed _____ semester hours.

☐ has received his Master's Degree from Indiana

☐ will receive degree _____

_____
Dean, The Graduate School

The Graduate Office will forward this request to the Career Services.


INDIANA UNIVERSITY
OF PENNSYLVANIA
INDIANA, PENNSYLVANIA
BUILDING LOCATION MAP
PREPARED BY
PHYSICAL PLANNING OFFICE
AUGUST 15 1970
REVISION JANUARY, 1975
SCALE
FEET
WASHINGTON STREET
OAK GROVE
SCHOOL ST
SOUTH ST
MAPLE STREET
MART STREET
BALTIMORE & OHIO
CAMPUS DR


WERY
BOOKBINDING